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Pictured with optional 19" Trinitron Monitor (add \$867*).

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- Intel® Pentium® 4 Processor 1.8GHz ■ 20GB HDD
- 128MB 133MHz SDRAM
- ▶ **FREE 128MB SDRAM**
- 48X Max CD-ROM
- 17" Colour Monitor (15.9" v.i.s.)
- SoundBlaster Live! Value 576 Voice Sound Card
- Harmon Kardon Stereo Speakers ■ 56K Modem
- 64MB nVidia GeForce2 MX AGP Graphics Card
- Microsoft® Windows® XP Home Edition
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- 16X Max DVD-ROM
- 64MB nVidia GeForce2 MX AGP Graphics Card
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- 56K Modem ■ PC Stereo Speakers
- 17" Colour Monitor (15.9" v.i.s.)
- Microsoft® Windows® XP Home Edition
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INSPIRON™ 2500

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- 128MB shared* SDRAM ■ 20GB HDD
- Intel® Integrated 3D AGP graphics ■ 3.5" FDD
- 14.1" XGA TFT Display (1024x768res)
- Sound Blaster compatible Audio ■ 24X Max CD-ROM
- Microsoft® Windows® XP Home Edition
- Microsoft OEM Works Suite 2001
- Internal mini PCI 56K Capable Fax Modem
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- 16MB ATI RAGE MOBILITY Radeon-P 4 X AGP
- 14.1" XGA TFT Display (1024x768 res)
- 3D Positional Sound with Wavetable ■ 24X Max CD-ROM
- Internal mini PCI 56K capable fax modem
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- Microsoft OEM Works Suite 2001
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- Harman/Kardon® Odyssey® 2 Speakers (Internal)
- 15" SXGA TFT Display (1400x1050 res)
- 24X Max CD-ROM ■ Microsoft® Windows® XP Home Edition
- Microsoft® Works Suite 2001 – OEM version
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Pictured with optional 19" Trinitron Monitor (add \$694).

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- 48X Max CD-ROM
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DIMENSION™ 2100

Pictured with optional 19" Trinitron Monitor (add \$867).

- Intel® Celeron™ Processor 1GHz
- 128MB PC100 shared* SDRAM
- ▶ **FREE 128MB SDRAM**
- 20GB* HDD
- Intel® 3D Direct AGP Graphics
- 48X Max CD-ROM
- 15" Colour Monitor (13.8" v.i.s.)
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- 16MB ATI RAGE MOBILITY RADEON-P 4 X AGP Graphics
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- 3D Positional Sound with Wavetable
- 24X Max CD-ROM
- Microsoft® Windows® XP Home Edition
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- 36GB* SCSI HDD (10,000rpm)
- 32MB ATI Raedon VE (Dual) DVI Graphics Card
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- Integrated Dual ATA-100 EIDE Controller
- Integrated 16-Bit Sound
- 48X Max Variable EIDE CD-ROM Drive
- Microsoft® Windows 2000
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Pictured with optional 17" Flat panel monitor - add \$1308*

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- Integrated Ultra 160/M SCSI Controller
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- 16x CDRW Drive
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- ▶ **FREE 128MB SDRAM**
- 20GB* HDD
- 16X Max DVD-ROM
- 15" Colour Monitor (13.8" v.i.s.)
- SoundBlaster Live! Value 576 Voice Sound Card
- Harman Kardon Stereo Speakers
- 56K Modem
- 64MB nVidia GeForce2 MX AGP Graphics Card
- Microsoft® Windows® XP Home Edition
- Microsoft® OEM Works Suite 2001
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Dell Dimension™ 4300 pictured with optional 19" (18" v.i.s.) Trinitron Monitor, add \$867*

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INSPIRON™ 8100 G1200U NOTEBOOK

- Mobile Intel® Pentium® III Processor 1.2GHz – M featuring Intel® SpeedStep™ technology
- 512KB L2 Cache
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- 3D Positional Sound with Wavetable
- Harman/Kardon® Odyssey™ 2 Speakers (Internal)
- 15" Super XGA+ TFT Display (1400x1050 res)
- 8X Max DVD-ROM
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The NEW Inspiron™ 8100 is a first from Dell™. It looks like a notebook, but on the inside it's a whole new machine offering the NEW Mobile Intel® Pentium® III Processor 1.2GHz – M featuring Intel® SpeedStep™ technology, PC133 SDRAM, and on-die 512K L2 cache to give you ultimate speed and power on the road.



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Pistons



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Toshiba PCs use genuine Microsoft® Windows®
<http://www.microsoft.com/piracy/howtotell>

Ditto ☒

Portége 4000 with Mobile Intel® Pentium® III processor featuring Intel® SpeedStep™ technology and Toshiba Tecra 9000 with Mobile Intel® Pentium® III processor - M.

systems keep the adrenaline pumping: Intel® Pentium® III processors drive blistering performance: radical styling generates powerful feelings of envy in observers.

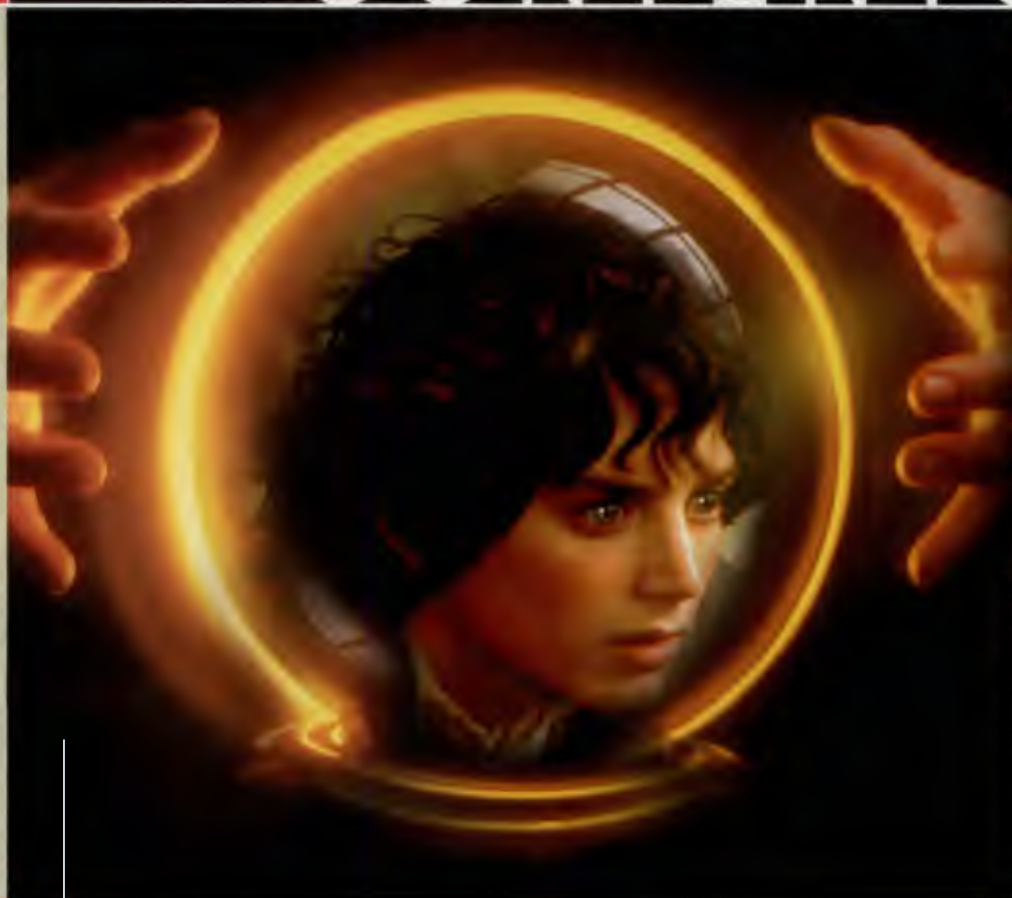
ACTION: Test drive the Portége 4000 or Tecra 9000 at your Toshiba reseller. For information call 1800 021 100 or visit www.isd.toshiba.com.au

*Microsoft® Windows XP Professional upgrades available when launched, and installed by your reseller. Preinstalled on Toshiba Tecra 9000 and Portége 4000 from Dec 2001.

TOSHIBA

It's a whole new world out there.

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NEED TO KNOW

12 GEAR

- **Nixvue Digital Album:** 10GB digital album with remote control.
- **Handspring Treo:** Palm-based PDA that's also a mobile phone.

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- A report card on Senator Richard Kenneth Robert Alston.
- Xbox arrives in March, but you don't have to wait . . .

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Broadband hell in a duopoly.

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ON TEST

REVIEWS

The latest and greatest technology releases

- **HP Jornada 565:** The first handheld to run on Microsoft's Pocket PC 2002 OS.
- **Sony DVPNS700V:** Just what the world needs, a new audio format. This one's just Super.
- **Xircom Wireless LAN Module:** Wireless modules for Palm devices are great, but use a lot of power.
- **Ricoh MP5120A:** DVD burning gets hotter and cheaper by the

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month. This new drive burns both DVD-RW and CD-RW.

LABS CHALLENGE

Hear ye, hear ye

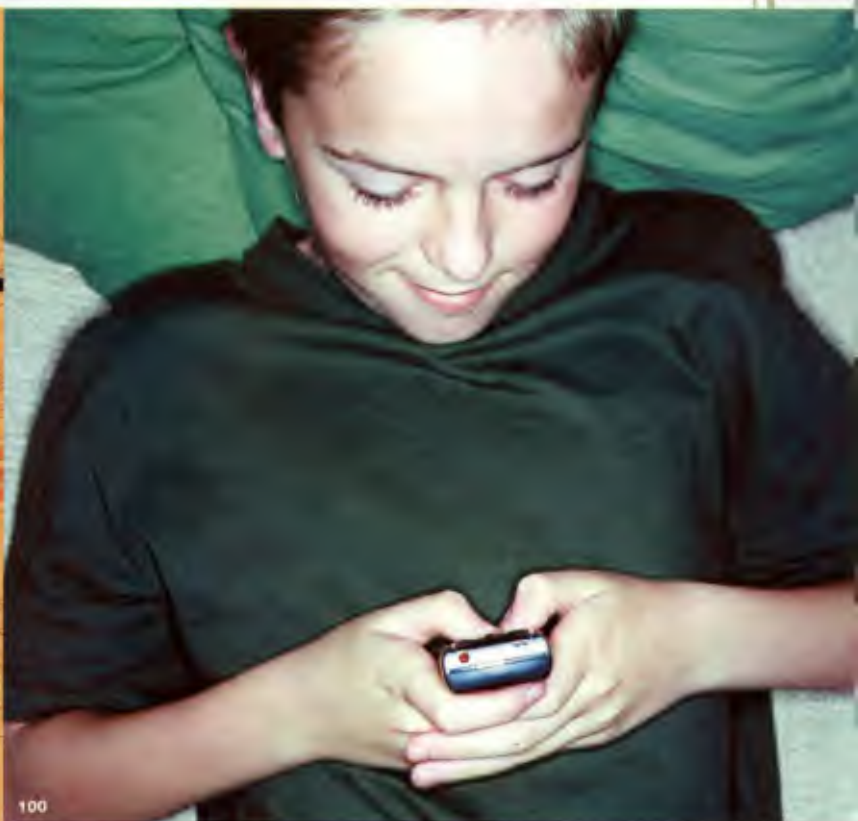
Speakers will either immerse you in the action, or just make everything sound like computer audio. We look at what you need to consider when selecting speakers and round up six of the best surround sets.

Webcamery

Webcams that make digital videos, sound recordings, and play MP3s? The latest all-in-one multifunction devices promise to deliver the world, but do they really add up?

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C O N T E N T S



NET HEIST

40 SPLIT YOUR BROADBAND ACCOUNT ACROSS A NUMBER OF CONNECTED PCs. APC EXPLAINS HOW TO DO IT, AND REVIEWS 10 ROUTERS THAT CAN MAKE IT HAPPEN.

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Get a real job

There are job sites, and then there are job sites. Which site has your type of job, and where can you find the best information to help you get that new post?

95 SMART BOOKS

Books to keep you ahead

Computer Animation: Algorithms and Techniques, Get Your IT Career in Gear, Hacking Exposed.

TECHLIFE

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SMS superguide

SMS succeeded without trying. APC dissects this simple technology and looks at every way to use it — from Web browsers, handhelds and chat clients — as well as how to set up alerts and sign up to notification services.

111 TECHLIFE BOOKS

Summer reading special

APC staff reveal their summer book lists. *True History of the Kelly Gang,*

Enigma, Dead Famous, The Voyage of Their Life, Gonzo Marketing, Love in a Dark Time, The Hole in the Universe, From Hell, plus more online.

115 PC GAMES

Aliens vs Predator 2

A new engine and new developer driving the beasts.

116 PS2 GAMES

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The PS2's first big-time platformer.

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Shrek

Record your own voice speaking the characters' dialogue.

118 WEBFILE

APC's pick of the month.



WORKSHOP

120 WINDOWS

Internet connection sharing with Windows
To go with our networking special on page 40, APC presents a 10-step program to Internet connection sharing for Windows 98, 2000 and XP.

128 LINUX

Plenty of people use both Linux and Windows. Find out how to have the best of both worlds, running Windows and Linux on the same machine at the same time.

130 MAC

iMovie sounds a whole lot sweeter when you add more sound effects. We show you how to add, remove and store new sounds.

132 DIGITAL VIDEOS

Archiving video footage on to a CD or DVD has been out of reach for most computer owners. The problem has been the complexity of the software, the price of the hardware and the difficulty of finding a video capture and conversion system, but now all that has changed.



136 FLASH

Flash movies can send and receive server data without the usual HTML "round tripping" that leaves users staring at a blank page. With some Flash know-how and the right server-side script, you can build great-looking forms and provide a seamless user experience to boot.

140 PHOTOSHOP

By creating a generic action, you can include an option for entering certain values when you use it, so you don't have to make do with preset values.

142 OFFICE

Excel's PivotTables can slice and dice your data to help you better visualise trends, pull together essential statistics, and break down your data by almost any number of factors.

apcmag.com

It's been over three months since we relaunched the APC Web site and already it seems like a world away — actually, on an Internet timescale, three months *is* a world away. So as part of our commitment to making **apcmag.com** bigger and better, we're planning an upgrade to the site in the new year based on your feedback. If you haven't already told us what you think, please let us know via our Web site — you must all know the Web address by now . . .

GOING XP??

If you've been anxiously awaiting the Christmas break so you can install the new copy of XP that's been sitting on your desk for the past week, then head to the *APC Windows XP superguide* before you start. We've got it all covered, from installing XP to a partition to setting up XP for gaming. Check it out now at www.apcmag.com/xp.

APC UPDATE

The *APC Update* is growing ever more popular with each passing month. In case you haven't heard, the *APC Update* is our roundup of the week's postings on **apcmag.com** and contains site news and exclusive promotions. To sign up, head to www.apcmag.com and click on the *APC Update* link.

As always, the **apcmag.com** team welcomes your opinions. So don't hold back. Check out our site, post a few messages, and tell us what you think. It's your site, so how do you want to see it grow?

Happy holidays!



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SONY



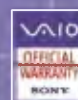
Multimedia magnate.



The new VAIO R505 Series combines the power of the Microsoft® Windows®XP Home Edition operating system with a range of multimedia software, opening the door to greater creativity. Memory Stick technology, along with i.LINK and USB, provides seamless connectivity across a range of media from digital cameras right through to the MS Walkman. Making it easy to enjoy and create movies, pictures, music, graphics and more. The new VAIO R505 Series multimedia notebook PC range will be available from the end of November. For further information visit <http://vaio-online.sony.com/au> or call 1300 13 SONY (7669).



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VAIO

Video Audio Integrated Operation

The VAIO featured is a VAIO PCGR505AFT (Microsoft® Windows®XP Home Edition, Intel Pentium III 850MHz, 256MB RAM, 30GB HDD, i.LINK (IEEE 1394), MagicGate Memory Stick direct slot, and Docking station with CD-RW/DVD-ROM Drive.) The Handycam featured is a DCRPC9. Specifications, features and prices are subject to change without notice. Microsoft and Windows are either trademarks or registered trademarks of Microsoft Corporation in the United States. Intel and Pentium are either trademarks or registered trademarks of Intel Corporation.

CD CONTENTS

CD1 HIGHLIGHTS

WINDOWS INTERNET CONNECTION SHARING

Sharing a broadband connection or a modem can have many benefits, so we've provided a guide to some of the best software to help your networked PCs share one Internet connection.

NEED TO LOAD

APC has put together an all-new section of software just for our readers. The new Need to Load section contains the newest and most exciting software releases we could obtain for Windows, Mac and Linux.

LORD OF THE RINGS

We assume our readers will be just as excited as we are about the release of this movie, so we've put together some "previews" for you — a picture gallery, a cool trailer and a series of Winamp skins.

MAYA 4

The *Lord of the Rings* movie brings to the fore the art of computer graphics generation and FX in movies. Now you can have a go on a demo version of one of the state-of-the-art professional 3D animation softwares used in the movie.

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NETWORKING

To tie in with our massive networking feature, we present a variety of software to help you get your network running smoothly and safely. With everything from server software to firewalls and antivirus programs, we've got you covered.

PC GAMES: TOM CLANCY'S GHOST RECON

Play a special bonus level in this demo version of the new tactical first-person shooter. The mission will not be included in the final game and acts as a prequel to the storyline of the full retail version.

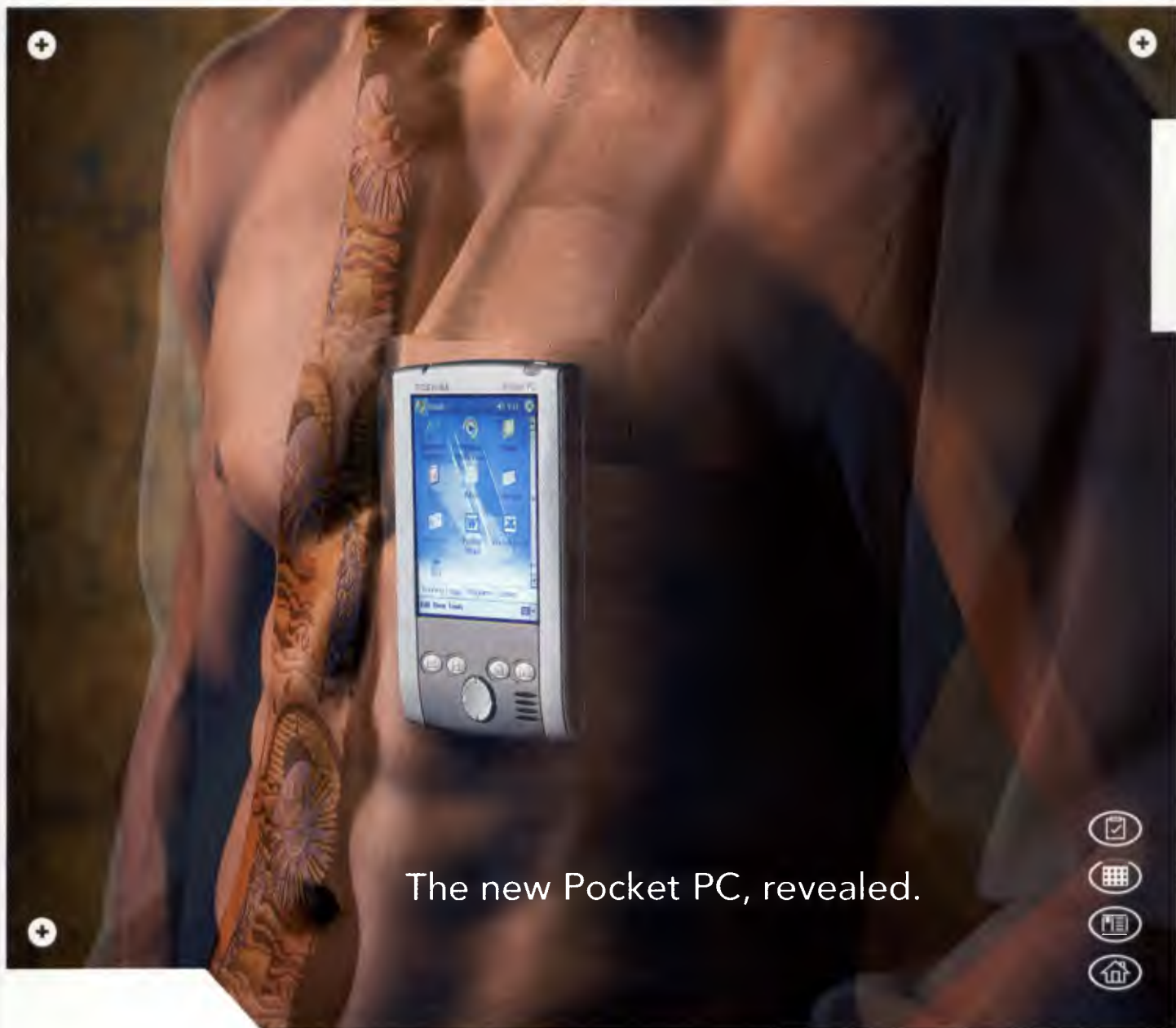
WEBCAMS AWAY!

Construct your own security system, keep in view of loved ones overseas, or put your life online for the whole world to see. This Webcam software can do it all!

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The new Pocket PC, revealed.

OBSERVATION: Good mobile technology helps you work smarter, not harder. Of course, the best makes you look damn good, too.

OBJECTIVE: To build the most desirable PDA of all.

RESULT: The Toshiba Pocket PC e570. It's sleek (pop it in a top pocket, slip it in a hip pocket, or leave it out where everyone can admire it). It's powerful (the processor zips through Pocket PC versions of major apps. For a small box it does big tasks, fast). It's flexible (two built-in expansion slots let you option up: boost memory and go wireless or – soon – add GPS, digital cameras and more). It's personal (organise your day, juggle your friends, schedule your night, retro-fit optional colour side-strips to match your mood). It's fun (play MP3s via optional stereo headphones, view videos on the big screen, dictate brainwaves direct to memory). Is it you?

FEATURES: Built-in MP3 and video player/bright high-resolution indoor-outdoor screen/ultimate expansion with SD and CFII slots/complete working environment with Pocket PC 2002, including Outlook®, Internet Explorer, Word, Excel and Microsoft® Windows Media™ player/extensive communications with USB, serial, infrared and optional Bluetooth™ and WiFi™ cards.

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It's a whole new world out there.

TOSHIBA

EDITORIAL

Editor David Flynn dflynn@apcmag.com
Deputy Editor Garth Montgomery gmontgomery@apcmag.com
Technical Editor Simon Tsang stsang@apcmag.com
Journalists Fiona Angus fangus@apcmag.com
 Darren Ellis dellis@apcmag.com
 Daniel Gardiner dmgardiner@apcmag.com
 William Maher wmaher@apcmag.com
 Matthew Overington moverington@apcmag.com
Editorial Coordinator Cathy Parkee cparkee@apcmag.com

DESIGN

Group Creative Director Michèle Heibel mheibel@acp.com.au
Acting Art Director Hye Won Kang
Graphic Artist Elinor McDonald
Photography Getty Images, Paul Suesse, Lex Mrocki, Rob Clark, Rob Taylor
Illustration Rachelle Wilson, Warren Taylor

PRODUCTION

Production Manager Lindsay Hayman
Sub-Editors Suzanne Fraser, Megan Smith, Jocelyn Hungerford, David Hovenden

MULTIMEDIA

Multimedia Production Editor Nola Camden ncamden@acp.com.au
Web and Database Manager Dan Lowden dlowden@acp.com.au
CD Coordinator Lachlan Grant lgrant@acp.com.au
Web Coordinator Laura Kane
Multimedia Coordinator Laurence Kwek

ADVERTISING

NSW Advertising Manager Cameron Curtis ccurtis@acp.com.au
Senior Account Manager Sumit Roy
Account Managers Amorette Judd, Ben King, Matthew Scotton
Advertising production Susan Harrison
Advertising enquiries (02) 9288 9150
Web www.apcmag.com/advertising

MARKETING

Marketing Brand Manager Mark Harrison mharrison@acp.com.au
Assistant Brand Manager Helen Duncan

ACP TECH

CEO John Alexander
Group Publisher Jill Baker

CONTACTING US

Email apc@apcmag.com
Web www.apcmag.com
Phone (02) 9288 9123
Fax (02) 9267 4909
Postal PO Box 4088 Sydney NSW 1028
Street Level 9, 175-183 Castlereagh St, Sydney

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ISSUE 277 JANUARY 2002



The year 2001 was a good one for APC. In May, we celebrated our 21st birthday, and in October, we took Australia's best computer and technology magazine and made it even better. Now, as APC steps into its 22nd year of publication, you'll see a few more improvements to the way we do things.

The first is our Editor's Choice award, which is given to the best products reviewed by APC each month in our On Test section — either in the single reviews, in larger features or in our Labs Challenges. When you see this logo, it's a sign that our expert reviewers have put the product through its paces, with the same attention to quality, design, performance, value and ease of use as in our annual Technology Awards. A product picked as Editor's Choice is a product that we would buy and use ourselves. You can't get a better recommendation than that.

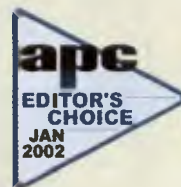
Although reviews have always been a cornerstone of APC, we're now going a step further. Not only will we continue to highlight the best products to buy, we'll help you get the most out of them.

A good example of this is our feature on home networking this month. It's a topic that many readers have requested, and many of our writers already enjoy the benefits of a home network. We've all been through the hassle of trying to determine which type of network is best, and trying to set up both wired and wireless connections with a mixed bag of PCs, which sometimes simply refuse to talk to one another.

So we decided to take our feature beyond a straight-out review of home networking kits and also address the issues of how to get everything working together. This includes a special section on the home networking features of Windows XP in our Workshop pages.

You'll see more of this approach in the months ahead — features that not only help you buy the right technology, but also help you use it. In 2002, more than ever before, APC is committed to becoming your essential computer and technology companion.

David Flynn





One company's technology is totally friendly to today's office environment.

One company makes a range of digital copiers and ECOSYS printers that actually talk the same language and use the same software.

This commitment to "shared technology" and total integration translates to an office environment, that is much easier to set-up and maintain – and also has the lowest total cost of ownership.

Kyocera Mita is the One.

But the commitment to a friendlier office environment doesn't stop there.

For example, because the drum, developer and toner are separate components in Kyocera Mita machines, they can be replaced individually – and only when necessary.

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For more information, contact Kyocera Mita Australia on 1300 364 429 or www.kyoceramita.com.au

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NEED TO



MIND CONTROL

The Cymouse isn't a torture device or a miner's lamp, it's a head-mounted infra-red controller for your PC. It was designed with two groups of people in mind: gamers can use it to take over or supplement the mouse; and it can also be used by the disabled to control the PC.

Unlike a normal mouse that provides feedback along the two axes, the Cymouse provides 3D feedback, including pitch, roll and yaw. You can twitch your head to swap weapons, use it to "mouselook", or close and open applications.

Contact Maui Innovations **Phone** N/A

Online www.cymouse.com

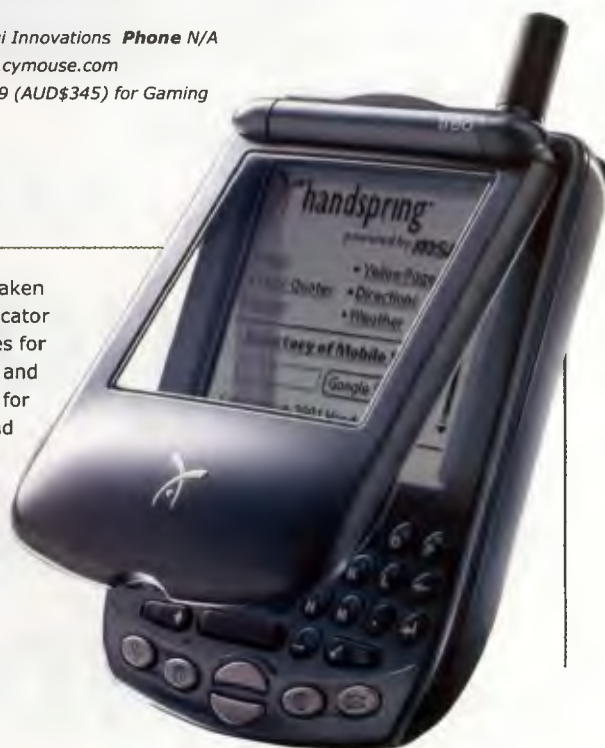
Price US\$179 (AUD\$345) for Gaming Edition

HANDSPRING TREO

Announcing the smallest Palm OS-based device to date. Handspring has taken the covers off its latest handheld, dubbed the Treo. Pitched as a communicator rather than a regular PDA, the Treo has built-in dual-band GSM capabilities for wireless communications. In addition to the usual array of Palm functions and applications, you can use the Treo as a mobile phone, an email client and for Web browsing. Powered by a 33MHz Motorola Dragonball VZ processor and 16MB of RAM, the Treo is available in two flavours — a built-in keyboard model (180) and traditional Graffiti input (180g).

Contact Handspring **Phone** 1300 765 005

Online www.handspringaustralia.com **Price** TBA



COMPACTED DISC

Forget writable DVDs and CDs; those 120mm discs are so clunky, man. What you need is a DataPlay disc. These little beauties are so small that the entire disc can sit on top of the centre of a CD, and still leave some clear plastic showing.

Set for launch in the US early this year, DataPlay discs can store up to 500MB of data for use in drives, or full albums of music. EMI, BMG and Universal music have already signed on to do simultaneous CD and DataPlay audio releases.

Contact DataPlay **Phone** N/A

Online www.dataplay.com **Price** TBA

KNOW

WHEEL LIFE

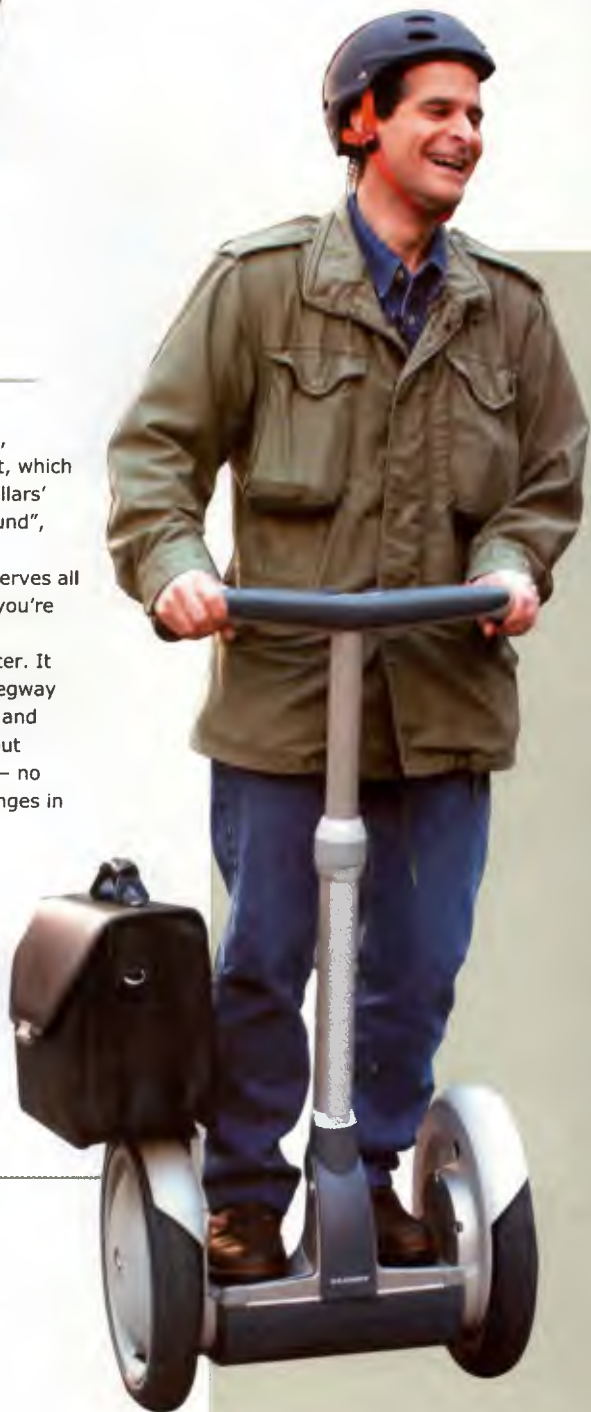
Forget everything you think you know about mobility — forget bikes, cars, scooters, and even your own feet. Long codenamed "Ginger", this product, which has been the subject of intense speculation, the recipient of millions of dollars' worth of investment, the device Steve Jobs said we'll "architect cities around", has finally been revealed as the Segway.

It's a two-wheeled scooter-like contraption that doesn't look like it deserves all this hype, but according to one of Segway's board members, it rides like you're "skiing without the snow".

This engineering marvel is, in fact, far removed from the humble scooter. It has no brakes, no steering wheel, no gearshift and no engine. To make Segway move forward, you lean forward. To stop, you lean back. Twist your wrist and it turns on its axis. All this sharp turning and leaning sounds precarious, but although it has only two wheels, the Segway doesn't allow you to fall off — no matter how hard you try. Micro-sensors and gyroscopes sense subtle changes in your balance, and the Segway adjusts accordingly.

If that's not enough, it runs on electricity, so it produces no polluting emissions, and runs for a full day on a tiny charge. Unfortunately, you won't be able to get your hands on one for quite some time. Commercial production begins this year, and the first units will be available in the US by the end of the year, priced at around US\$3,000 (about AUD\$5,800).

Online www.segway.com



NEW KID ON THE BLOCK

Toshiba has entered the PDA market with a 206MHz Intel StrongARM-based device running Pocket PC 2002. Featuring a clear 64KB colour screen, and support for Wi-Fi, Bluetooth and SD, the Toshiba e570 joins other Pocket PC 2002 devices from Compaq and Hewlett-Packard already on the market. Included is a Compact Flash II expansion slot that provides a connection facility for adding devices such as a GPS, GPRS, LAN, barcode reader, 802.11b wireless LAN, or a 56KB modem. The e570 comes in a 32MB version, but can make use of up to 256MB of memory.

Contact Toshiba

Phone 1800 021 100

Online www.isd.toshiba.com.au

Price \$1,249





So, WHAT'S NEXT?

HE'S ALREADY OUR LONGEST-SERVING COMMUNICATIONS MINISTER, AND HE'S HERE TO STAY.

For the past six years he's shaped what we can see and do on the Net. He presided over Australia's first steps onto the global Internet stage and shaped our formative years of Web development and telecommunications deregulation.

He gave us one of the world's first Net censorship regimes, banned online gambling, fixed copyright loopholes and held our hand through the Y2K ordeal. He's stood by as broadband prices continue to rise, ADSL users suffer rolling network breakdowns, new datacasting technology is smothered, and university IT research and education is squeezed.

Whether you call him the "Father of the Australian Internet" or a regulatory irrelevance, he's defied rumours that his time is up and secured his third term in the communications hot seat. *APC* looks at the legacy of the Minister for Communications and Information Technology, Senator (The Honourable) Richard Kenneth Robert Alston.

1996 TO 2001: THE ALSTON ERA

■ **Censorship:** Alston didn't approve of all that porn in the early days of the Net, so he brought in a censorship regime under the guise of the Broadcasting Services Amendment. "The Government's proposals

are designed to protect Australian children," he said. "Any attempt to interfere with these protections will make it easier for pedophiles, drug-pushers, racists and criminals to pollute the Internet." If something offends, complain to the Australian Broadcasting Authority (ABA), which can demand that the ISP hosting it takes it down.

■ **Security:** There are now hefty penalties for digital fraudsters, while police and secret service agents have powers to secretly monitor your PC. New "cybercrime" laws also force us to hand over encryption codes.

■ **Telstra:** Alston presided over the deregulation of the telecommunications industry and the sell-off of our national telco. He then devoted the next six years to trying to force Telstra to be more competitive and provide subsidised services.

■ **Copyright:** Is the same on and offline thanks to amendments to the Copyright Act.

■ **Privacy:** As we enter an age of online market research, new laws allow companies to collect and use personal details. They just have to take "reasonable steps" to make sure the information is secure and up-to-date.

■ **Internet gambling:** To ban or not to ban? Alston slapped a year-long ban on all new online gambling services before deciding to permanently outlaw Australians

from gambling on the Net. It's still OK for Australians to set up gambling sites to lure people overseas into squandering their cash.

■ **Datacasting:** What's that? It's a really cool interactive TV service that we can't get, thanks to years of political high-jinks and wrangling over cross-media ownership laws.

■ **Ecommerce:** Behind the scenes, Alston sweated over a framework for the National Information Infrastructure, including digital authentication standards, electronic transactions and domain name policy. He formed the National Office for the Information Economy to measure Australia's take-up of new technology — if only the results looked a little better.

A spokesperson for Alston's office said they rated their biggest achievement as creating an open and competitive telecommunications regime. "The issuing of new carrier licences has led to steady improvements in prices and services." And the low point? "We would have liked to have proceeded with cross-media changes," (which could give us datacasting) he said, then blamed their failure on the other political parties.

So what's next for the man charged with governing the Net? Is Alston really up to leading us beyond the first stages of the global communications revolution, or are we destined to become the black stump of the World Wide Web? We asked four key players in Australia's IT sector to rate Alston's performance during the past six years and identify the challenges he must face in the next three.

Fiona Angus

AIIA EXECUTIVE DIRECTOR ROB DURIE

The Australian Information Industry Association

High points: Some of the initiatives on skills, including the Skills Hub and funding for the Centre of Excellence research institute, were a breakthrough. The overall commitment to the Innovations policy wasn't as much as we wanted, but it makes a good start.

Low points: Datacasting, digital TV and outsourcing were a mess. The government's procurement processes (the way it buys IT) are too complex and inhibit local companies. The costs imposed on government and industry from outsourcing were very high. For example, the first five outsourcing deals cost the government more than \$45 million to process — and that was all just bureaucratic expenditure.

What's ahead: We have to spend more on education. Our expenditure is below the average rate of other OECD (Organisation for Economic Cooperation and Development) countries. We also need to set up a very focused and aggressive investment attraction agency to ensure Australia is an extremely attractive place for both international and local companies to invest. The biggest challenge is to get the government — not just the IT minister — to give a higher priority to technology-related issues. We want technology to move from just being a matter for the IT minister to being a priority for every portfolio.



IIA EXECUTIVE DIRECTOR PETER CORONEOS

The Internet Industry Association

High points: With changes to online copyright, I think he recognised the tensions in the community between content creators and content transmitters and worked hard to strike a reasonable balance. Changes to online copyright, financial transactions and privacy were also good.

Low points: Spectrum allocation and the introduction of digital TV have been very disappointing. The free-to-air TV networks have been half-hearted in deploying their digital TV commitments and a lot of people were led to believe they would be getting a lot more by now. I think that everyone — including Alston — wished that the whole datacasting issue had been handled differently. This time around the government will be keen to get it right.

What's ahead: The big issue is broadband. The government is relying on competition policy as the main means of broadband rollout in Australia, but there's a question mark over whether this can help people in regional areas where it may not be economical to provide services. Do we now assume that people in the bush are never going to get broadband, or that they don't deserve to have the services? Are we prepared to change our thinking on this? Particularly now, there should also be tax incentives for ecommerce to give industry even more reason to go online.



EFA CHAIRPERSON KIMBERLEY HEITMAN

Electronic Frontiers Australia

High points: I don't think Senator Alston has been an effective minister in terms of the Internet. He was asleep at the wheel for six years, and as a consequence I couldn't off the top of my head find a high point.

Low points: Since he came to power, we now have all of this silly legislation [Net gambling, content regulation, online surveillance] to try and secede Australia from the Internet. The fear of the Internet has become a feature of Australian political life. We're now known as a country that isn't particularly clued up when it comes to the Internet and, as a consequence, I think we've now lost new technology and credibility.

What's ahead: We would like to see an independent IT policy forum that could advise the government on a non-party political basis. We would be hoping to see a roll-back of the Net censorship legislation, a change of policy in relation to Net gambling and also some proper administrative controls over electronic surveillance. There needs to be a widespread rollout of broadband and opening up the pay TV cable networks to Internet protocol would be a cost-effective and straightforward way of giving broadband to many people in Australia. All it requires is a declaration from the telecommunications minister. It may also be worthwhile looking at what can be done with the remaining telecommunications spectrum, such as opening it up to community groups rather than trying to sell it to the highest bidder.



ACS PRESIDENT JOHN RIDGE

The Australian Computer Society

High points: I think it's better to look to the future. Senator Alston and his staff understand the industry and the issues we face well, but that level of understanding doesn't flow through all of government. The problem is not one of awareness, but of understanding. There are very few people who are not aware of the Internet and computers, but how many people really understand how much value the IT industry can really deliver?

Low points: Some of the things others think of as low points I don't have the same attitude towards. The government needs to rethink its attitude to purchasing Australian IT products and services to provide more support for local industry. The government purchases about 40% of all its products and services in Australia, and when we're running at such a large deficit there's obviously something wrong.

What's ahead: There's a lot on the agenda in terms of IT. People can always say that more needs to be spent, but it's not so much the amount of money but the timing of the expenditure. I'm concerned not so much with the initiatives themselves or the level of spending, but more the timing of it. A lot of the expenditure is in the latter years of this term and not the early years. In the current economic climate, I think there's a strong justification for accelerating that expenditure.





TECH TRADE-IN

You know times have changed when PC companies start offering trade-ins. Toshiba is offering to take your old desktop or notebook PC off your hands when you upgrade to a sparkling new notebook. It's a pretty cut-and-dried affair — you visit the Web site, type in the details of your old rust-bucket machine and Toshiba gives you a valuation. We're not sure if there's room for haggling, but there's no harm in trying.



► *Yep, definitely time for an upgrade.*

FAMILY FEUD

Uh oh. Someone isn't too happy about the HP-Compaq merger, and it happens to be the Hewlett clan themselves. Three children of William Hewlett, the co-founder of HP, have come out against the merger, arguing the company would do better sticking to printer sales. Son Walter wants to avoid the ups and downs of the PC market, which he described as "neither growing nor profitable". Unfortunately, the names Hewlett and Packard don't have the same clout as they once did. Between them, the Hewletts only have about a 5% stake in the company — they'll need a lot more support to stop the deal. The answer might be the other co-founder's son, David Packard. However, reports say Packard is likely to join the no-merger camp. Stay tuned, this might get ugly.

EARLY XBOX

PSSST! WANNA GRAB YOURSELF AN XBOX BEFORE IT HITS THE SHELVES IN AUSTRALIA?



The Xbox, Microsoft's much-hyped rival to the PlayStation2, is already in lounge rooms and bedrooms across the US, but do Aussies have to wait till 14 March for the black, plastic box to hit the shelves? Maybe not . . .

Impatient Xbox fans have discovered it's possible to get hold of the Xbox well before March, if you know where to look. The "secret" is to order online from the US. There's a little more hassle involved, but hey, this is about games, right?

"What about power differences and TV outputs?" we hear you say. One gamer who ordered an Xbox said Web shoppers need to watch out for some traps, but argued it was worth the extra effort.

"Yeah, there's no way I'm waiting until March. That's crazy, how do they expect us to wait that long?" he said.

Our friendly Xbox fan found his prize at www.dvdboxoffice.com, where he paid about \$449.95 in Canadian dollars, or roughly AUD\$560. The package included the Xbox, an extra controller, Dolby Digital sound pack for DVDs and the game Halo.

Still, not everything went to plan. The Xbox was ordered on 16 November, but nearly two weeks later it was still unclear when everything would arrive in Australia. The site showed the extra controller and sound pack were on their way, but the all-important black box was still in limbo.

There's also "region codes" to worry about. Like DVD players, the Xbox has been set up to play only games sold in local shops. Buying a unit from the



► *Just another day at the office.*

US might also mean having to buy all your games offshore.

Not surprisingly, these are minor worries for Xbox fans. "If I can't get games in Australia, then I'll buy them from the US, and they'll cost me the same amount of money and I'll get them earlier. It's not a big deal." You'll also need to spend about \$100 on a power converter, but even this doesn't seem to be a concern. The main aim is getting hold of the Xbox before the hordes of other gamers.

So what's all the fuss about? The Xbox heralds Microsoft's entry into a fast and furious world of snowboarding, sci-fi action and 3D combat. It's an all-out joystick war, the Xbox being pitted head-to-head against Sony's PlayStation2 and Nintendo's Gamecube.

All three machines are part of a plan to bring video games out of the closet (or the litter-strewn teenage bedroom) and into the lounge room. In doing so, the game console will somehow have to become the centrepiece of a home entertainment system. You want DVDs? The Xbox will play them, with 3D surround sound. The Xbox is also ready for cable Internet, plus it has an 8GB hard drive. It's obvious we're not just talking about Tetris here.

The key message is that video games are no longer just for little kids, which is good, because most little kids can probably no longer afford them. At \$649 for the Xbox, plus about \$100 for most games, plus extra for a second controller so you can play against a friend, it would be a wonder if kids have enough money left for the tuck shop.

William Maher



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With your choice of 10 or 20GB of space on each interchangeable disk, the new iomega[®] Peerless[™] drive is a removable storage system like no other.

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it compatible with both PC and Macintosh systems. The FireWire interface moves data at a staggering 15MB per second. And at the size of your palm, it's portable enough to take anywhere. It's affordable too.

But to find out more you'll have to get online and check out the flash demo at www.iomega.com/anz

MAC OR PC

FIREWIRE OR USB

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iomega[®]



RADIO GA GA

Radio 96.1 listeners were shocked when they logged on to the Aussie station's live Web music stream recently. Instead of the normal dose of "nothin' but '90s", visitors found instead a large CLOSED sign: "Unfortunately, increased costs associated with online streaming have forced the closure of this function." The staff had no idea when APC called — hmmm.

WEB WEIRDNESS

Finally the hunt for the Tourist Guy ended, marking another chapter in Net lore. Like love sick Turk Mahir, the image of a bloke on top of the WTC with an incoming plane pasted in the background became the most circulated image and discussion point online — also spawning some fantastic spoofs. Apparently Peter's mates were behind the original. A Brazilian stepped up to claim the honours after the worldwide hunt began, but he turned out to be "mistaken" once Peter piped up.

PIXEL PUNCH

Bruce Lee: he's fast, he's lethal, he's . . . a computer graphic? FX artists reckon they can bring the ass-kicking martial arts icon back onto the big screen in digital form. It'll be the same trademark moves, the same voice, the same blood and sweat (yes, the graphics will be detailed), but it'll all be fake. Critics are already comparing the project to that *other* animated film, *Final Fantasy: The Spirits Within*.

A NOVEL FORMAT

LIBRARIES ACROSS SYDNEY'S NORTH

SHORE ARE LENDING EBOOK READERS

LOADED WITH THE LATEST BESTSELLERS.

With a waiting list a year long, who said ebooks weren't popular? Five public libraries in the Shorelink Library Network each have three REB 1100 ebook readers for loan and 180 ebook titles. "The public are really taking to it," said the senior librarian at Stanton Library in North Sydney, Paula Pfoeffler.

Some are arranged by genre, such as the "mystery" ebook reader. "We've gone for a family style for our readers. So on each reader we have a mixture of fiction, non-fiction and children's titles." One has *The Constant Gardener* by John Le Carre, Stephen King's ebook experiment *Riding the Bullet* and some Beatrix Potter (without pictures).

"Readers are saying, 'It's great to have lots of titles on one reader instead of carting away 12 books.'" The A4-sized REB 1100 runs its own OS, has a back-lit 14cm monochrome screen, weighs 500g and holds up to 20 novels in its 8MB of memory. "There's lots of things you can do: mark pages, highlight text, bookmark different pages and search for character names," said Pfoeffler. But you need to recharge the battery every five hours or so," she said.

Not just anyone can borrow an ebook. "The hardware is actually quite expensive, so you have to



► Paula Pfoeffler and the REB 1100. Intrigued by ebooks? Make your own ebook, or try Microsoft's and Adobe's ebook software on CD 2 of this month's CD set.

be over 18 to borrow one," Pfoeffler said. She's worried people won't return the reader or will wipe the memory card, but so far, all the hardware has come back intact. "Fingers crossed," she said. "We're really experimenting with ways we can show people different electronic formats. It's not necessarily the way we're going to go in the future, it's just what's out there now."

Shorelink's project for this year is NetLibrary. "You'll be able to browse the online catalogue, click on the book you want and download it straight to your PC," she said. "But we're not getting rid of books; it just means something extra is available."

Fiona Angus

WARRANTY WOES

APPLE'S AIRPORT IS HOT. REALLY HOT.

The Mac-maker's wireless station, which connects Apple desktops and notebooks to the Net (and each other) via 802.11, has proven to be one hot product. Literally.

Fans of the flying saucer-shaped wireless wonder are grumbling of heat-related failures occurring outside the 12-month warranty period.

One customer reported on an online discussion forum, "[I] called Apple tonight with my dead base station (one year, two weeks old), and was told that my serial number was not one of the affected units they would replace . . . As a long-time Apple enthusiast, this is really ticking me off. I thought I was buying the base station, not renting one for a year."

Apple Australia seems mystified by the burnouts. "We have not heard of these burnouts in any volume through our customer call centres," said Apple Australia representative Myrna Van Pelt.

Fortunately, the problem seems to have been fixed in the most recent AirPort Base Stations, which have more robust parts capable of taking the heat for several years.

The main bugbear for existing AirPort users is that only certain AirPorts have been replaced, and only in North America. In July, Apple identified the failure symptoms and initiated a limited recall for units with serial numbers PW940XXXXXXX to PW952XXXXXXX.

David Emberon



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Plus \$275/yr		20 MB	15	U		L NT											1 GB
SoHo \$399/yr		50 MB	30	U		L NT											1 GB
Standard \$489/yr		100 MB	50	U		L NT											2 GB
Heart \$599/yr		200 MB	75	U		L NT											2 GB
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UK & Australian domain fees cover registration for 2 years

Comparison with other web hosters as taken from their websites on 24 September 2001

Domain name costs are for 2 years and include GST-

Company	ilisys	Telstra	Web Central	Commander	NetRegistry
.com .net .org	\$40	\$165	\$66	\$66	\$110
.com.au	\$110	\$165	\$135	\$135	\$140

Entry-level domain hosting packages

Specifications vary from package to package

Company	ilisys	Telstra	Web Central	Commander	Net Registry
Hosting package	basic	-	Economy	Bronze	The Promoter
Server space	20 MB	-	20 MB	20 MB	35 MB
Monthly transfers	1 GB	-	500 MB	500 MB	1 GB
Domain name .com	\$40 for 2 years	-	\$66 for 2 years	\$66 for 2 years	\$110 for 2 years
Set up fee	0	-	\$64	\$59	\$108.90
Cost of basic package	\$199	-	\$420	\$370	\$382.80
Total including GST.	\$239	-	\$550	\$495	\$601.70

Business Packages

Specifications vary from package to package

Company	ilisys	Telstra	Web Central	Commander	Net Registry
Hosting package	Standard	Business	Business	Platinum	The Business
Server space	100MB	100MB	70MB	1 GB	50MB
Monthly transfers	2 GB	1 GB	750 MB	2GB	1.5 GB
Domain name .com	FREE for 1 year	\$165 for 2 years	\$66 for 2 years	\$66 for 2 years	\$110 for 2 years
Set up fee	0	\$110	\$97	\$99	\$108.90
Cost of basic package	\$489	\$1320	\$665	\$2990	\$778.80
Total including GST.	\$489	\$1,595	\$828	\$3,155	\$997.70

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A NEW HOPE

Fujitsu PC Australia is hoping to crack the Australian market with a series of stylish slimlines. And communications manager Ingrid Rothe isn't scared by Gateway's demise: "The notebook market should grow by around 10% in the next 12 months." On paper, the LifeBooks look good. "Our P series is the lightest notebook around and outperforms Sony's Vaio," she said.

SICK GAMES

It's official. The frenzy over video game consoles is out of control. In the US, a 19-year-old shaved his head, painted himself blue and ate a bowl of worms and crickets — all so he could win a Nintendo Gamecube, Game Boy Advance, games and US\$5000 (AUD\$9,627) cash. Jason Siler also dressed up as Nintendo's Mario character and proposed to his girlfriend who was dressed as Nintendo's Peach.

HOME FREE?

Bil Gates is a relaxed man. In the past six months, he's been on stage with World Wrestling Federation star The Rock, played video games with teenagers, and signed autographs in New York's Times Square. Maybe it's because Microsoft has agreed to settle its epic antitrust battle

with the US government. We'll have to wait until February for the final decision.



► Microsoft's future CEO?

DEATH BY MODEM

USING A SWANN MODEM? GET READY FOR A SHOCK.

Swann Communications has announced some of its modems could blow up or electrocute users during a power surge or lightning strike. Technical manager James Cain said that people surfing the Net with their SwannSmart II and MacSurfer PCMCIA laptop modems (model P100) could suddenly be on the receiving end of tens of thousands of volts. "In the worst case scenario, the modem casing could become 'live' and electrocute the user," he said.

Modems are meant to disconnect and protect the user during a power surge. However, the insulation on the P100 is sub-standard and could



pass the surge on to unsuspecting users. Cain said the faulty model passed Swann's initial safety tests, so he was shocked to discover in ongoing tests that the Taiwan-based manufacturer had later changed the insulation material used in the modems. Swann is investigating taking action against the manufacturer. Cain says there are still around 100 exploding modems out there (although the risk is small). If you think you have a live one, exchange your SwannSmart II (SW-M-SS2PC) and

MacSurfer PCMCIA (SW-M-MS2PC) laptop modems (Model P100) by calling 1300 138 324 or (03) 9421 2600.

Fiona Angus

"DEAR VALUED CUSTOMER . . .

. . . WHAT FOLLOWS IS AN EXCLUSIVE LIST OF EMAIL CONTACTS ACROSS GOVERNMENT AGENCIES AND BIG BUSINESS."

The Police service, the Queensland Premiere's Department and IBM are all on this email broadcast by Hewlett-Packard. It flies in the face of privacy laws that came into force last month, which requires companies to take "reasonable steps to protect the personal information it holds from misuse and loss and unauthorised access".

Sydney networking engineer Lucian Pearce never imagined his private email address would be made public when he signed up for warranty information for his HP LaserJet 2100. "Now I've got the addresses of 700 people, and I'm assuming they've got mine," he said. That's what happens when an entire address list is just dumped in the "To" field. "I usually use a dummy email, but I thought 'this is HP', and was stupid enough to trust them." He replied to the person that sent the email. No response. He sent an email to HP's general address and politely pointed out that they were violating their own privacy policy. No response.



► HP CEO Carly Fiorina adds email privacy issues to her To Do list.

APC forwarded the email back to Hewlett Packard's marketing manager, Adrian Weiss. Mystification turned to chagrin, then an immediate apology. "We have established policies to protect our customers' privacy. We regret that in that instance our own policy was not followed," he said. "HP is taking action to educate our employees on the importance of adhering to our privacy policy, and of our absolute requirement to respect the privacy of our customers."

Fiona Angus

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TWO OF A KIND

PALM'S LONGSTANDING DOMINANCE OF THE HANDHELD MARKET ONCE AGAIN COMES UNDER THREAT

FROM RENEWED ATTACKS BY MICROSOFT. ITS LATEST

WEAPON, POCKET PC 2002, IS ARMED TO THE TEETH

AND TEAMS UP WITH HP FOR ANOTHER ROUND

AGAINST THE HANDHELD KING. *By Simon Tsang*

Pocket PC, the operating system first introduced into the handheld scene as Windows CE, then re-released under its current moniker in 2000, wasn't the roaring success Microsoft had hoped it would be. Far from being the Palm-killer many were expecting, Windows CE proved to be woefully slow and clumsy to use, and the platform demanded hardware requirements well beyond those of the Palm OS as well as most reasonably priced handhelds of its time. Not surprisingly, Palm sales forged ahead and it continues to dominate

HP Jornada 565

the handheld market to this day, enjoying the preference of around 80% of users.

Pocket PC 2002 is the latest incarnation of Microsoft's attempt to dominate everything that runs on some memory and a processor. This time around, though, it appears Microsoft has got it mostly right.

The Jornada 560 series from Hewlett-Packard is the first range of handhelds to ship with Pocket PC 2002. Competing products from Compaq, Casio and Toshiba aren't far behind.

Two Jornada models are on offer. The 565 reviewed here has 32MB of SDRAM, while the 568 is equipped with 64MB. Its Type 1 CompactFlash expansion slot means you can add more memory if required; however, its usefulness as a means of extending the Jornada's capabilities is limited by the extra burden it places on the battery. A "power-saving" tip it offers is to have it running on the AC adaptor when using CF cards — not exactly a practical solution for what is supposed to be a mobile device. Type II CF devices such as the IBM Microdrive don't even get a look-in. MMC and SD card support is available in the form of an optional battery pack adaptor, but that falls short of Toshiba's e570 and Casio's Cassiopeia E-200, both of which feature built-in solutions for Type II CF and SD slots as standard.

Just about every aspect of the 565 is a big improvement over the unimpressive 540 series, from the sleek metallic-looking silver-blue display cover to the upgrade in colour depth, to full 16-bit (65,536 colours) — from the 540's 12-bit. Although the screen isn't the brightest we've seen, it is adequately usable outdoors. The display can be powered off independently of the OS via a separate button above the screen. This is to save power for when the screen doesn't need to be viewed, such as when listening to MP3s.

Existing Palm users may find switching to a Pocket PC handheld a little easier now that it has added a Graffiti-like text input method. When selected, this converts the bottom quarter of the display into a "Block recogniser" mimicking the Palm's screen. Not all characters are written in the same way as on the Palm OS, though. As the Block recogniser only occupies screen space when used, it's a more effective design than having a permanent area reserved for text input. Another useful input method is the Transcriber mode, which allows you to write anywhere on the screen in cursive handwriting. You can write single characters, words and even complete sentences before translating it into typed text. And the accuracy is astounding.

This handheld's software includes Pocket versions of Outlook, Internet Explorer, Word, Excel and MSN Messenger — a

Contact Hewlett-Packard

Phone 13 23 47

Online www.hp.com.au

Price \$1,499

Verdict ■■■

► The new navigation pad makes light work of getting around documents and onscreen controls.



comprehensive list, supplemented by HP's inclusion of Outlook 2002 and MusicMatch Jukebox 6.0 for the PC. ActiveSync 3.5 is the conduit supplied for linking the Jornada to the PC, and by default, it automatically updates both ends as soon as the handheld is docked in its cradle. You can also browse the files contained in the Jornada as you would a drive in Windows Explorer. File conversion needs to take place before files on one system can be read on the other, but ActiveSync handles that automatically unless otherwise configured.

The strongest improvement in Pocket PC 2002, however, is in its support for all forms of networking, which is still a weak point in Palms. It now supports Virtual Private Networking (VPN), and has a Terminal Service Client so that administrators can dial into their servers using only the handheld. A Task Switcher now allows you to switch quickly between active applications, much as you would by pressing Alt-Tab in Windows, or shut all running applications down in one go.

So is this the OS to topple Palm? Not likely. While improvements abound and it may steal a few converts, the fact remains that Pocket PC requires substantial power to run. The 206MHz Intel StrongArm processor found in the Jornada 565 has more grunt than most notebooks manufactured as recently as five years ago. Thus, Pocket PC 2002 will only be found in more expensive handhelds, leaving Palm untouched in the sub-\$1,000 segment. The Jornada 565 is proof of this, retailing at \$1,499 — \$350 more than the Palm m505. The 568 is another \$250 still, making it a whopping 50% more expensive than a Palm if you're comparing flagship models. It also depends on what you intend to do with your handheld. Pocket PC 2002 is designed as a notebook replacement, whereas the Palm OS is more of an organiser. They aren't necessarily interchangeable.

Although it's a huge improvement over HP's past efforts in handhelds, it remains to be seen whether the extra features its competitors are boasting will be in upcoming models will leave the 565 outclassed. ■



from DC — zero — to 100,000KHz). And that's not all. CD has a maximum of only two channels (stereo), but SACD has from two to 5.1 full channels of superior audio.

For concert reproductions, the result is almost hallucinogenic. Some jazz SACDs are recorded with a single instrument on each channel, so it feels like you're in the orchestra, rather than the audience. Classical concerts and rock music are also immersive. Unlike CDs when they were first released, SACDs are not prohibitively expensive. However, they don't play on an ordinary CD player. SACDs have either one or two high-density layers that contain the audio, as well as a small area for data such as lyrics, sleeve notes or images. Hybrid SACDs are also available: these have two layers — one a CD layer for playback on a CD player, the other SACD only.

So what new gear do you need to play SACDs at home? The Sony DVPNS700V, Sony's lower-end player, combines DVD, SACD, CD and VCD, and supports burnt discs (CD and DVD). As a DVD player, the unit supports 5.1 Dolby Digital as well as 5.1 DTS. This is a full multi-channel SACD component, so it requires a multi-channel receiver to plug into for full 5.1 playback of SACD audio. The CD/SACD multichannel outputs are RCA, but there's also a digital optical output for Dolby Digital and DTS streams. About the only thing missing from the DVPNS700V is a radio tuner.

We tested the unit on a humble multichannel 5.1 home theatre system, and the results were amazing. The SACD of Tchaikovsky's *1812 Overture* came with a warning about the cannons, and it wasn't wrong — it would be easy to blow out your speakers with this disc, not to mention your ears. It was a hybrid disc, so we swapped regularly between CD and SACD and were impressed with the difference. The CD audio is great, but when you swap from SACD to CD, half of the orchestra disappears. ■

GOLDEN EARS

REMEMBER WHEN WE THOUGHT NOTHING COULD
TOP CD FOR SOUND QUALITY? WELL, HOLD ON TO YOUR
HEADPHONES — SACD HAS JUST SET THE NEW STANDARD.

By Darren Ellis

Just when the world had settled down with a reliable audio format, another one comes along to supplant it. CD has long been hailed the best medium for audio reproduction, and is so good that many people cannot tell a badly mastered disc from a good one. Now comes Super Audio CD (SACD), a format that completely trounces CD.

Original analog music recordings are converted to digital for CD audio using PCM (pulse code modulation). The resulting data is in 16-bit sample lengths at a sampling rate of 44.1KHz. When played, the signal is interpolated up to the analog original, but a lot has been lost in the process. SACD records with Direct Stream Digital (DSD), which samples at 1-bit lengths at 64 times the sampling rate of CD (that's an amazing 2,822.4KHz). There are no filters, no downmixing and no interpolation of the signal — what is recorded is exactly what is played back.

The shorter bit lengths mean that the sound quality is around four times better than CD audio reproduction, and there's a much higher frequency response (CD is from 5 to 20KHz but SACD is



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Verdict ■■■■■

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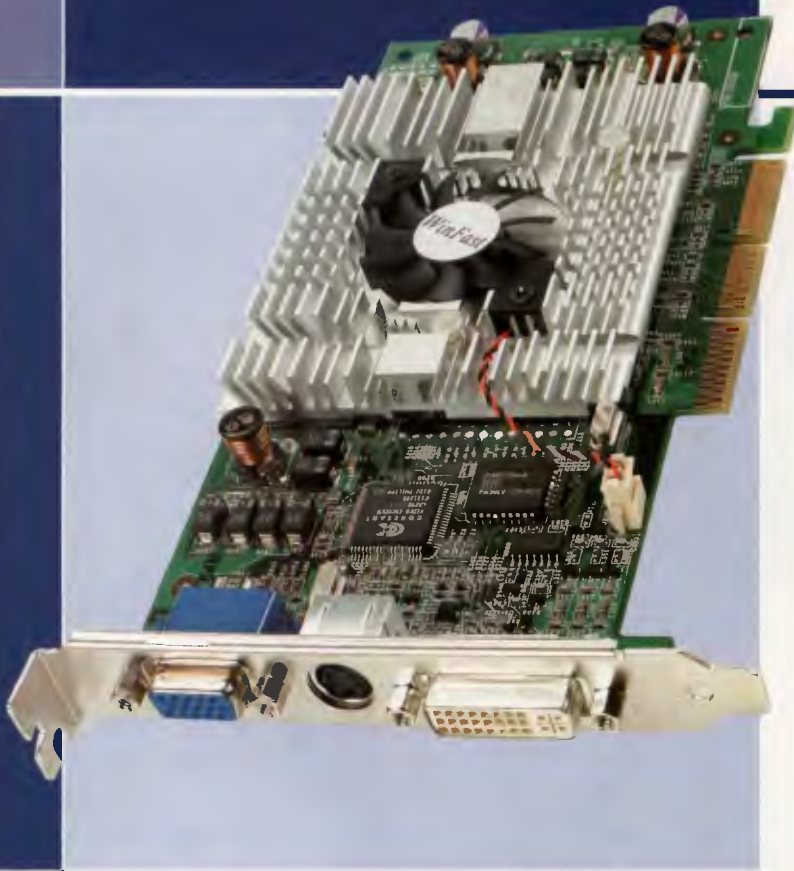
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A FORCE TO BE RECKONED WITH

**3D FANS ARE ABOUT TO BENEFIT FROM SOME
HEALTHY COMPETITION IN THE VIDEOCARD MARKET.**

By Daniel Gardiner

They've arrived. Finally.

When the first GeForce3s were released, most reviewers were quick to point out that it would only be a short time before nVidia introduced "tweaked" versions of the GPU to suit different markets. Well, 3D fans, that time is at hand — and not a moment too soon.

With the recent US release of its Radeon 7500 and 8500 videocards, ATI has stepped up to take 3dfx's place, and it has nVidia in a bit of a pickle. The 8500 is widely reported to equal the GeForce3 in many benchmarks, and it's a lot cheaper.

nVidia's answer to the threat? Two new flavours of GeForce3: the Titanium 200 and Titanium 500 (Ti200 and Ti500 respectively).

The Ti500 can be thought of as a GeForce3 equivalent to the GeForce2's "Ultra" model: it's the flagship of the range and offers

the best possible performance, with an equally high price tag. The Ti200 is more along the lines of the budget GeForce2 MX — the focus is on keeping costs relatively low, but it still gives you enough power to render some pretty impressive 3D.

So what's new exactly? The short answer is: not much. Like the GeForce2 Ultra, the Ti500 relies on slight increases in core clock speed and RAM to enhance the GPU's rendering capabilities. A standard GeForce3's core is clocked at 200MHz, and its DDR effectively runs at 460MHz. The Ti500, by comparison, runs at 240/500MHz, and the Ti200 is slower at 175/400MHz. A somewhat simplified explanation of how this works is: core clock speed controls how many calculations a processor can perform in a given period of time, and RAM speed controls how many equations can be delivered to the processor. Generally, the higher the MHz ratings, the greater the rendering power. Core clock and RAM are usually carefully balanced so that the processor is only given as much work as it can handle.

So exactly how much better is the Ti500? APC Labs tested both of Leadtek's new GeForce3 Titanium cards, alongside a standard Leadtek GeForce3 for reference.

In 3D benchmarks, performance increases were fairly consistent leaps from one card to the next. In 3DMark 2001 at 1,024 x 768, there was a 9.3% boost between the Ti200 to the standard GeForce3. There was a further 9.7% improvement using the Ti500. Ironically, the performance increases actually get larger as you bump the resolution higher — the extra MHz really comes into play as the cards are pushed to their limits. At 1,280 x 1,024 the GeForce3 is 12.2% faster than the Ti200, and the Ti500 is 13.8% faster again.

The result: the Ti500 is damn hot. At high resolutions, it comes close to 30% faster than the Ti200, and 15% faster than a stock-standard GeForce3. Then again, the Ti200 is a comparative steal at only \$580. Some GeForce2 GTS cards were still this expensive only 18 months ago, and the Ti200 has loads more features and far superior rendering abilities. That GeForce3 upgrade just got a whole lot more tempting. ■

Contact Rectron Electronics Australia

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Price \$850

Verdict ■■■■

SPEED TEST				
	GEFORCE3 TI500	GEFORCE3	GEFORCE3 TI200	GEFORCE2 TITANIUM
3DMark 2001 Pro	7798	7108	6502	4298

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CS0667/2

Microsoft Encarta Reference Library 2002

forefront of multimedia encyclopaedia design. It's hard to beat the relatively friendly look and feel of Microsoft's "browser" model.

The start-up page provides several options to help you with your research decisions. You can choose from searching by articles (look straight into a topic of choice), maps (goes to the World Atlas and allows detailed exploration), multimedia (allows you to search for audio, video and computer generated tours of world locations), tours and many other research criteria.

A great constant of Encarta is the virtual tours. There are many 2D tours to choose from, and seven 3D tours. It's awe-inspiring to walk through re-creations of the Colosseum, Acropolis and others buildings. It's not quite up to Quake III in terms of graphics detail and speed, but it nevertheless gives great insight into how these architectural marvels might have looked in their day. And most points of interest are linked to more in-depth discussions.

Also included is what's called the Research Centre — a powerful tool for gathering all the material you've collected for your project. It's a neat way of organising your research without bookmarking or losing your place in the labyrinth of articles.

Unlike some earlier versions, the Atlas is an integrated part of Encarta 2002. It provides detailed geographic and demographic views, as well as meteorological statistics.

In addition, there are many links to related articles on the Web, and when you select them, you're directed to the site through the Encarta browser. This keeps everything in a uniform interface and avoids opening what might become extraneous browser windows.

The beauty of Encarta 2002 is that, once installed and registered online, you can access the entire library on the Internet. You can visit the regular Encarta site (Encarta.ninemsn.com.au), or flick over into the Encarta Online Deluxe site. Access is granted via your MSN Messenger credentials and by virtue of registering your Encarta Library. Essentially, if you have access to the Internet, you can use Encarta anywhere in the world.

Recommended for school students of any age or anyone else after an informative reference work on every topic imaginable. ■

FACTS AND FIGURES

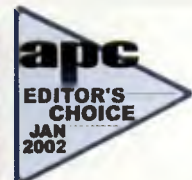
HOMEWORK ASSIGNMENTS HAVE NEVER BEEN EASIER OR MORE FUN THAN WITH THIS ELECTRONIC ENCYCLOPAEDIA AND ATLAS COLLECTION.

By Ben Menge

Encarta Reference Library 2002 combines the best-selling Encarta Encyclopaedia Deluxe with an admirably detailed world atlas and a one-year membership to Encarta Online Deluxe.

The four CDs hold a wealth of knowledge. You can install the basic files and run Encarta from the CDs, or choose the Hard Drive option and run the entire library from your local disk. The latter option allows much faster access and obviates the need for the CDs thereafter. If you have the spare 2.4GB available on your PC, it is well worth using the library this way.

The content of the Library is certainly very impressive. Some users complain that it only has 60% of the raw content of the electronic Britannica Encyclopaedia, but there's no denying that Encarta is at the



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I can...



The inks come in separately replaceable transparent ink tanks, and each is separate from the print head.

The printer driver alerts you when inks are low allowing you to replace only one colour at a time, keeping operating costs down. Plus, Super Economy Mode saves you even more money by cutting ink consumption.



Light



Light

Smart monitoring system.

...print brilliantly, and save you money.

1440 dpi, variable ink drop sizes.

Quality is exceptional, even on low cost plain paper with resolution up to 1440 x 720 dpi, plus Drop Modulation Technology™ with variable ink drop sizes. B&W is enhanced using high optical density black pigment inks.

Optional PhotoRealism.™

Special inks vary the saturation level per dot (e.g. 33%, 67%) for up to 5 times as many colour combinations as conventional



CMYK inks. The result is smoother tones with vastly reduced grain.

PhotoRealism produces colours between colours.

Parallel and USB interface.



Both ports are built-in for Windows and Macintosh.†



Turn your printer into a 720 dpi colour scanner with the optional scanner cartridge, pictured left.



Better print quality, automatically.

Photo Optimiser adjusts for defects in exposure, highlights and shadows while Automatic Tone Control reduces the 'colour noise' from compact digital camera images. Image Optimiser prints low-resolution Internet images up to the maximum resolution supported by the printer.



High speed printing.

Large print heads and bi-directional printing produce up to 4 colour pages per minute. An optional, dedicated black ink cartridge is capable of B&W speeds up to 9 pages per minute.‡

Canon Customer Care. The one-year warranty is upgradeable to three years for a minimal charge, and is backed by Customer Care hot-line support. For more information call 1800 021 167.



S400SP

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Canon

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CS0662

On the Plus side

Continuing the trend that began with Windows 95, Microsoft has released Plus! for Windows XP. This \$82 add-on for XP offers new games, themes, screen savers and digital media enhancements. By far the most useful section is the digital media, which allows you to control music playback through voice commands, create a music playlist based on your specified preferences, or tune your speakers for best performance using special presets. Look out for our full review next issue.

[www.microsoft.com/
windows/plus/](http://www.microsoft.com/windows/plus/)



Picture this

The Olympus Camedia C-40ZOOM comes in a small package but offers an outstanding 4 megapixels — enough power to produce quality images outclassing larger competitors. Priced at \$1,799, the unit comes with a 16MB SmartMedia card, and has many features such as in-camera saturation, contrast and sharpness adjusting as well as the ability to capture up to two minutes of video with sound.

www.olympus.com



UNCHAIN MY PALM

Xircom pretty much owns connectivity in the mobile computing space, and Intel's acquisition of Xircom in 2000 underscored the chip king's desire to focus on life beyond the conventional desktop PC. Wireless networking is a big part of that vision, and it's the cue for Xircom's new 802.11b module for the Palm m125 and m50x series.

The unit provides wireless intranet and Internet access by piggybacking onto the handhelds through the HotSync connector. It works at distances of between 100m and 300m, depending on the surroundings and on speed — Xircom cautions the top rate of 11MB/s can be limited to as little as 30m in the office.

The backpack's Lithium-Ion battery gave me around four hours of moderate use on my wireless home network. To recharge it, you use the same cable as the Palm, but you need to remove the module to HotSync the Palm.



Like other networking hardware the Xircom adaptor requires some manual configuration, so it's not a simple "click and connect" process, nor is it one for networking novices.

After setup and the first rush of excitement, it's time to figure out what to do with a fast wireless connection on a handheld. The small screen works against browsing and email is tedious without a keyboard, which can't be used when the module is fitted. Also, the Palm lacks the processing power to benefit from the speed of the incoming pipe.

The Xircom is most useful for close-quarters intranet work where mobility is a must, such as in restaurants and warehouses.

David Flynn

Contact Intel Australia

Phone (02) 9937 5800

Online www.intel.com.au

Price \$499

Verdict ■■■

Ricoh MP5120A

BURNING DESIRE

Starting to burn your own DVDs really opens up a can of worms. Do you go with DVD-RAM, DVD-R, DVD-RW or DVD+RW? These formats aren't compatible with each other's drives. DVD-RAM is a caddy-based format, with a capacity of between 4.7GB and 9.4GB. The discs can't be used in any other DVD drive. DVD-R and DVD-RW are 4.7GB writable and rewritable formats well integrated into the IT market and used in most DVD players and DVD-ROM drives.

DVD+RW, an extension of the CD-R and CD-RW formats, is different again. It's not supported by the DVD Forum but is supported by a lot of the DVD Forum members. The 4.7GB discs can also be used in most DVD and DVD-ROM drives, and the jury's still out on whether DVD-R or DVD+RW offers greater compatibility.

Just to increase the options, Ricoh has released the MP5120A drive, which offers both DVD-RW and CD-RW burning. We popped the drive in



our test machine (no drivers required for Windows), installed the copy of Nero 5.5 Burning Rom

that came with the drive, and were all set to burn except that the drive would not write to the disc. We eventually discovered some DVD-RW discs have to be formatted before burning.

However, once formatted, the drive works beautifully. It writes DVDs at 2.4x, which is comparable to 22x CD writing. The CD-RW aspect is rated at 10x rewrite and 32x read. It's fast, reliable and easy to use, and considering you can burn the DVD-RW discs 1,000 times, it's also versatile.

Darren Ellis

Contact Protac

Phone (02) 8748 8888

Online www.ricoh.com.au

Price \$1,100

Verdict ■■■■

I can...



Super fast, fast mode.

A special fast mode combines an extra large print head capable of up to 12 million ink ejections per second with four drive motors. The paper feed is up to 70% faster, and is enhanced by a 20% greater data compression ratio. This allows fast mode to print up to 15 monochrome pages (text), and up to 10 colour pages per minute.¹



...print up to 15 B&W pages per minute.

5 pico-litre drops for 2400 dpi.

The S600 uses MicroFine Droplet Technology to precision-place extraordinarily small ink drops at resolutions up to 2400 x 1200 dpi.



Better colours that last longer.

The S600 inks produce more vivid colours for improved reproduction on plain paper, and deliver sharper, blacker rendering of monochrome text. The ink range also offers vastly improved light fastness. In a simulated fading test, they have been shown to last up to 25 years using ISO standards for levels of acceptable fading when printed on Canon Photo Paper Pro.²



Resolves speed vs. quality issues.

The S600 also features a special draft mode. Slightly slower than fast mode, it combines high speed, with ink conservation, while resolving the quality issue common to conventional draft modes. New head design and Precision Colour Distribution Technology improve colour consistency while producing high-density, high contrast prints and still achieving B&W speeds up to 12ppm.¹

Smart ink monitoring.

Inks are contained in separately replaceable transparent ink tanks, and each is separate from the print head. The monitoring system alerts you when they are low, so you replace only one colour at a time.



S600

colour Bubble Jet™ printer

Just \$599^{RRP}



Parallel and USB interfaces are built-in for Windows and Macintosh.³

Canon Customer Care. The one-year warranty is upgradeable to three years for a minimal charge, and is backed by Customer Care hot-line support. For more information call 1800 021 167.



You can...

Canon

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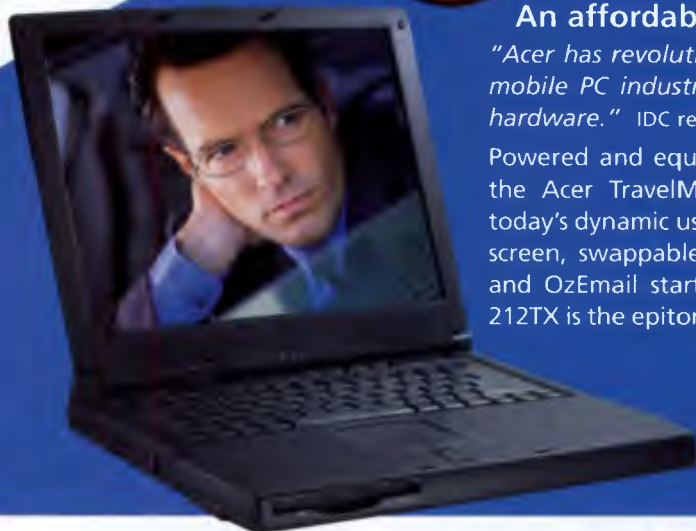
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notebook over lunch.



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www.quicken.com.au



Feel the noise

Cyberlink's popular DVD playback program PowerDVD has been updated to include support for the new Dolby Digital 6.1. DD6.1 is an upgraded version of the more familiar DD5.1 found on most current DVDs — it adds a sixth speaker to the rear centre. PowerDVD is currently priced at US\$49.95 (AUD\$96). So now all we need are some DD6.1-compatible speakers and DVDs.

www.gocyberlink.com



LAP IT UP

The Acer TravelMate 612TXV features a slim profile for a 900MHz Pentium III laptop, and an attractive silver magnesium chassis.

Acer has left out serial and parallel ports and made them optionally available via add-on cards or a port replicator dongle. A basic I/O replicator is also available, which provides serial and parallel ports.

Despite these economies, the notebook is equipped with a wide range of ports and sockets, including ones for a v.90 modem, RJ-45 10/100base Ethernet, two USB, Fast Infrared and a single PC Card slot. There's only one MediaBay, so you can only run one drive at a time — by default an 8x DVD-ROM drive. Two batteries are included with the TravelMate, and each lasts for a shade more than two hours under load (2:12 and 2:09 when tested with ZD's BatteryMark software). A smartcard and Kensington lock are also included to help bolster the security of the unit.



Acer TravelMate 612TXV

Laptop keyboards are often too cramped and awkward to type on for long periods of time. However, the Acer has an ergonomic keyboard design. The flat keys have about 3mm of travel and are laid out in a curve, which makes the keyboard comfortable to use in cramped conditions.

Below the keyboard is a touchpad and scroll key standard to all Acer notebooks. A relatively large amount of force is required to depress the buttons, but neither of them travel more than 1.5mm, which makes double-clicking difficult. The touchpad is functional, but if you are working at a desk you'll probably prefer to use an external mouse or trackball. Overall, a generally well-designed portable.

Matt Overington

Contact Acer

Phone 1300 366 567

Online www.acer.com.au

Price \$4,899

Verdict ■■■■

THICK AS A BRICK

Remember when owning a notebook was a burden almost too heavy to bear? Those mid-1990s Toshiba Tecras and Gateway Solos, or that first IBM ThinkPad, gave us more upper-body strength than PC power.

Well, it looks like those days are back with the Hyundai Notebook. More like a brick than a portable, it weighs 3.5kg and is more than 4cm thick. The lacklustre blue and grey plastic case (with imitation metal control buttons) hides all the raw power that 128MB RAM, Windows Me and a Pentium III 850MHz chip can deliver. In APC's performance tests, it wasn't just slower than comparable notebooks, it gave us time to reminisce about those "classic" ThinkPads.

Rest assured that legacy technology lives on in the Hyundai. One lonely USB connection sits some



Hyundai Notebook

distance from a legacy 25-prong parallel printer port and a floppy drive. With only 10GB of hard drive space on this machine, those old floppies will sure get a workout.

The Hyundai's only interesting feature is a peculiar receding 14.1in display. The base of the notebook pokes out underneath the lid to expose a set of buttons that control CD-play, volume and a flashy light to indicate when new mail arrives. If nothing else, these toys will provide some relief to cramped fingers tortured by the tiny touchpad.

With so many choices in slimlines, the Hyundai's retro "brick" look is likely to have trouble taking off.

Fiona Angus

Contact Natcomp Technologies

Phone (02) 9712 0099

Online www.natcomp.com.au

Price \$2,999

Verdict ■



Finished



Not quite

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Hot chip

Hot on the heels of its Athlon XP launch, AMD has released yet another XP chip. The new 1900+ runs at a speedy 1.6GHz. So what's the big deal? It outperforms Intel's beastly 2GHz Pentium 4. APC Labs benchmarked the new processor against a P4 2GHz and received consistently higher results (in eight out of nine tests) for the 1900+. The new chip scales similarly to its XP predecessors, with performance increases of between 2% and 5%, compared to the 1800+.

www.amd.com



Extra sensitive

The \$99 MouseMan Dual Optical uses two optical sensors to register mouse movements more accurately and on a wider range of surfaces than a conventional optical mouse (which relies on one sensor). The mouse has 800dpi sensors, which are double the resolution of previous sensors, and which will be welcomed by gamers. It features similar ergonomic styling to previous Logitech optical mice, including four programmable buttons and a scroll wheel.

www.logitech.com



HP LaserJet 1000

QUICK PRINTS

At \$649, the LaserJet 1000 is designed to bring affordable laser printing to small business and the home. The LaserJet 1000 is quick (about 10 pages per minute); the first page takes less than 15 seconds. Another advantage of laser printers over inkjet models is their low maintenance requirements. The LaserJet's toner cartridge prints 2,500 pages before requiring replacement, and the paper tray holds 250 sheets.

The printer is nominally capable of printing at 600dpi, but Hewlett-Packard claims it achieves "a virtual 1200dpi" by way of "HP Resolution Enhancement Technology". Printed test pages reveal slight pixellation under magnification, but the overall quality is outstanding. For bulk printing duties, a laser printer is vastly superior to an inkjet, as its speed and low maintenance needs enable it to run for long periods of time under high load.

The primary connection method is via a parallel cable, but the printer also includes

a parallel to USB adaptor cable, so you can also run it from

a USB connection. It doesn't support HP JetDirect print servers, so if you intend to share it over a network, you need to serve it off a computer and let the operating system handle spooling.

The driver software has several useful features such as the ability to put a text watermark beneath every document sent to the printer. This enables you to mark each printed sheet "Confidential" or put your company's details in fine grey type under the printed document. The printer can also incorporate up to nine pages onto a single sheet of paper by scaling down each page sent from the computer.

Matt Overington

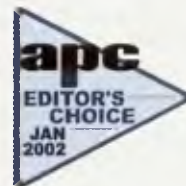
Contact Hewlett-Packard Australia

Phone 13 23 47

Online www.hp.com.au

Price \$649

Verdict ■■■■



Lexmark E210

SMALL WONDER

Small businesses are leaning increasingly towards home offices and there is a growing need for affordable office equipment. Lexmark has heeded the call by creating the E210 laser. It has a small, unobtrusive footprint, minimal operating noise and is totally silent in sleep mode.

Connectable by regular parallel port or via an optional USB cable, the E210 is extremely easy and quick to install. When we tested the printer, this took no more than two minutes.

The sheet feeder can only hold 150 sheets, but that's plenty for personal use and should be sufficient for most small offices. Printouts can be ejected through the front slot or switched to collate in the vertical "out" bin.

Lexmark has provided 4MB of installed memory, which is enough to take the load off your PC and allow other work to be done.

When the print quality was set at 600dpi,



the 12-page test document took one minute and 20 seconds to complete, which wasn't too far from the 12 pages per minute claimed by Lexmark. When set at 300dpi, the same document took only a tad longer than one minute — much closer to the claimed speed, and the quality is still good.

We found the 300dpi setting adequate for general printing purposes. It's fairly clean, although closer inspection reveals "jaggies" in the curves of most characters. You can switch to 600dpi for a much smoother result.

The E210 is a good quality package for its price and produces very good results for personal and SOHO purposes.

Ben Menge

Contact Lexmark Australia

Phone 1300 362 192

Online www.lexmark.com.au

Price \$599

Verdict ■■■■

MSI 645 Ultra

MOTHER LOVE

The MSI 645 Ultra is the first in what will be a long line of motherboards that support both the Intel Pentium 4 processor and DDR SDRAM. SDRAM motherboards based on the Intel i845 chipset (see APC November 2001, page 148), had freed us from RDRAM, but the wait was still on for DDR. It looks like that wait is now over.

So what makes this board tick? The centrepiece is, of course, the SIS 645 chipset, which allows for DDR RAM, but aside from this the motherboard is fairly standard. It's well laid out — there's plenty of space between the IDE and floppy connectors; the two power connectors are spaced apart and the front panel pins are set to one side of the board. If there's one problem with the board, it's the proximity of the RAM clips and the CD audio-in port to the AGP slot. An installed video card would make upgrading RAM a hassle — put it in last.

It can handle Pentium 4 processors (Socket478) from 1.5GHz to beyond 2GHz and its three DIMM slots can take up to 3GB of DDR SDRAM. We tested the board under Windows XP, with the latest drivers and updates applied. We installed a modest 256MB of PC2100 DDR, a 2GHz Pentium 4, a GeForce3 with 64MB DDR



and ran the benchmarks from a 40GB hard drive running on its maximum performance settings.

The results? The board was comparable to an i850 board with 256MB RDRAM — there were no noticeable differences. The hard drive scores were lower (particularly the Ziff-Davis Business Disk WinMark score) and the graphics scores are roughly on a par with an i850. The main advantage of the MSI 645 Ultra board is the saving it represents: DDR is cheaper, and the board itself costs a mere \$270.

Darren Ellis

Contact MSI Computer Australia

Phone (02) 9748 0070

Online www.msicomputer.com.au

Price \$270

Verdict ■■■■■



File transfers can be a hassle, particularly if the machines aren't networked or you need to reconfigure a laptop's Net configurations for the new network. FastLynx 3.2 is a handy \$215 program that makes it easy. Small enough to fit on one floppy, the program has a split screen, drag-and-drop interface. Don't worry about cables either, as the box contains three 3m cables: serial, parallel and USB. www.checkmark.com.au

Space invader

Space Searcher is a nifty little utility that does what Windows Explorer doesn't — it trawls drives and file folders and presents space usage information in an easy-to-read graphical format. It's best used when you need that little bit of extra hard drive space. It enables you to find orphan files and directories that are taking up valuable real estate and get rid of them. www.winfrigate.com

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Sounds good

Most portable MP3 players only store about one CD's worth of music. Disc-based players like the Exonion, however, can play CD-R/RW discs able to store up to 12 CDs worth of music.

The \$499 Exonion is not just your average disc-based MP3 player either. It also has a large back-lit LCD that can display ID3 information, a sorting feature that allows you to search by artist or genre, and an eight-minute anti-shock buffer.

www.mpzoo.com.au



Round sound

Evoking the classic egg-shaped chairs of the 1970s, the SSLA500ED speakers from Sony are designed to complement your funky décor, and come in several colours. The finish is solid metal, and the chrome base means the speakers can be freestanding or wall-mounted. Priced at \$499 each and sold separately,

you only need to buy as many as your audio setup requires.

At that price, fitting out your stereo won't break the bank, but creating a full surround package might.

www.sony.com.au



SIDEWAYS GLANCE

Home theatre projection isn't easy to get right. For good quality images you have to shell out a lot of cash, and you have to mount the projector on the ceiling or stick it in the middle of the room.

Not so with the Sony Cineza, a snazzy little unit designed for home theatre fans who want all the good things a projector can offer without the aggravation and high cost. This is not a professional projector but it's got everything you need to get started as well as one funky innovation.

Conventional projectors distort the image into a trapezoid shape when they are off-centre on the vertical axis, but this can be fixed by keystone correction. Distortion due to the projector being to the left or right of centre had no means of correction — until now. The Cineza is the first projector we have seen that has both vertical and horizontal keystone correction. This is perfect for the home



because you can sit it on a table in the corner of the room and project a perfect image onto the centre of a wall.

The unit comes with composite,

S-video, PJ multi-in and a MemoryStick slot for inputs, and can display up to 800 x 600 resolution. The resolution isn't terribly impressive, but watching TV, DVD and PC was fine. The lamp life is rated at 2,000 hours, which is a respectable amount of time compared to other high-end projectors. If you use it for two hours a night, seven days a week, it should last for just under three years — new lamps are \$495.

Darren Ellis

Contact Sony

Phone 1300 137 669

Online www.sony.com.au

Price \$5,995

Verdict ■■■■

ON THE CASE

The most significant benefit of using a TFT monitor instead of a conventional CRT is its flicker-free output. The Digital Device LL500H uses a 15in Samsung LCD panel, which operates in a native resolution of 1,024 x 768 pixels. Liquid crystal displays have improved greatly in quality in recent years, and the Digital Device's output is clear and sharp, with excellent colour depth. Four buttons on the front panel of the screen control the OSD menu, which provides a wide range of contrast, image position, brightness and size options. Because the range of the controls is wide, you can adjust the monitor to handle any light conditions well — although there's no effective auto-calibrate feature.

Disappointingly, the Digital Device unit doesn't have a USB hub. TFT monitors usually incorporate USB hubs into the base or side panels of the monitor. These hubs are relatively cheap —



around \$50 — and don't contribute significantly to the overall cost of the unit, so there's no reason why the Digital Device should be without one.

The case's quality is also slightly less than satisfactory. The plastic panels creaked when the monitor was moved around, giving the impression that the panels were not securely attached, and that the unit could disintegrate at any time. However, when a monitor is initially unpacked and put onto a desk, chances are that it will remain in that position for months, if not years, until the desk is replaced or it becomes obsolete. As most monitors aren't transported after being set up, case quality is unlikely to matter much. Still, if you intend to purchase a TFT for portability, it's something you should consider.

Matt Overington

Contact Digital Device Australia

Phone (02) 9869 4598

Online www.digitaldevice.co.kr

Price \$895

Verdict ■■■■

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compatible iLink Interface
- Large 4MB Buffer



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- Buffer-under-run protection



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40X Playback
- Internal model designed for desktop
& tower PCs
- High Quality Optics
- Fast Digital Audio Extraction
- Operates in vertical or horizontal
orientation
- Unique Memory Stick operation
- Latest Sony Buffer-under-run
technology



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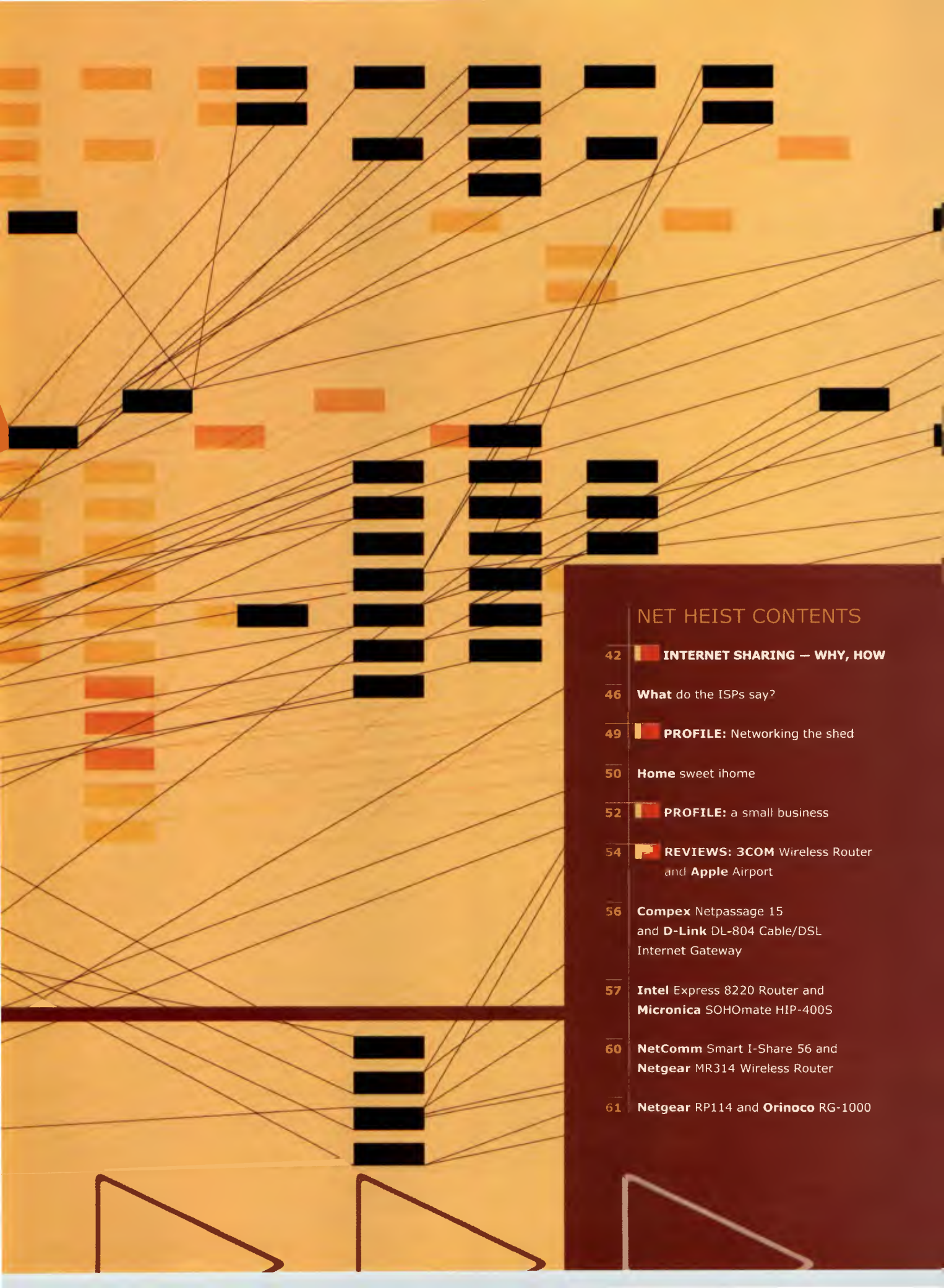


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Connection sharing — the solution for families and group households.

NET HEIST

BY MATT OVERINGTON



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EVERYONE WANTS TO USE THE COMPUTER AT ONCE, SO YOU GET ONE FOR EACH MEMBER OF THE FAMILY. THEN THEY ALL WANT TO USE THE INTERNET AT ONCE, SO YOU SHELL OUT ONCE AGAIN FOR SEPARATE INTERNET CONNECTIONS. GETTING EXPENSIVE, ISN'T IT? THERE IS A BETTER WAY.

An ever-increasing number of homes around Australia are connecting to the Internet via broadband connections, just as an ever-increasing number of houses are becoming equipped with more than one computer. Broadband connections are capable of sending and receiving more data than the average Web surfer is capable of downloading in a month, and most users are not approaching even a 3GB data transfer limit. Instead of several users in the one house paying for individual Internet access, it is more cost-efficient to share a single connection between multiple computers.

Internet connection sharing is of benefit anywhere where several people would like to access the Internet or telephone line concurrently — typically in a shared household or family environment. You can share an Internet connection over a dialup modem, although the low bandwidth of modems means that while this works acceptably if you are only sharing email and extremely limited browser capabilities, large-scale Web browsing of media-rich sites will soon bog your network down to a standstill. It is vastly more efficient to share a cable, DSL or ADSL connection between several users, provided that your area has broadband access.

PLENTY OF BANDWIDTH TO SHARE

The most common form of household broadband access in Australia is cable, where the same cable is used for both data and television channels simultaneously. The cable uses 6MHz frequency blocks to send the data for each television channel — given that the frequency range covers from 0MHz to more than 1,000MHz, there is ample bandwidth for hundreds of channels. A 6MHz frequency range is used to transmit cable data downstream (from the Internet to your desktop), while a 2MHz block is allocated to transmitting upstream data back to the ISP. As most cable modems are used primarily for downloading, this slow uploading speed isn't a substantial drawback for most users.

DSL (digital subscriber line) sends data along telephone wires at speeds of up to 1.5Mbit/s, using a greater range of

the audio spectrum than conventional modems. Because the frequency range used by DSL is different to that used during regular telephone conversations, you can use a DSL connection while you are sharing the telephone line for a voice call. One of the biggest drawbacks of DSL is that it only works over a relatively short distance. DSL is unable to communicate over a distance of more than 5.4km because of signal quality degradation, meaning that your DSL modem and that of your ISP must be physically close to each other. As DSL signals cannot be amplified using the loading coils that amplify voice signals, the data signal cannot be repeated over a distance in the way that voice calls can.

ADSL (asymmetrical digital subscriber line) uses the same technology as regular DSL, but a larger amount of the available bandwidth is allocated to downloading than to uploading. This makes ADSL much faster at downloading information than it is at uploading it, which in turn means that ADSL is a good way to connect to the Internet, as most people tend to download vastly more data than they upload, and the available bandwidth is allocated accordingly. ADSL can provide download speeds of up to 8Mbit/s, coupled with upload speeds from 64Kbit/s to 640Kbit/s.

HOW TO SHARE THE CONNECTION

There are two basic ways of sharing a connection: you can either set up a dedicated computer, or you can use a dedicated router. Many households will have a computer that has been filtered down from family member to family member, a relic left over from several upgrading cycles as newer machines have replaced antiquated equipment.

The biggest advantage of running a dedicated computer as a gateway is that it is relatively easy to run software applications on it, although the negative side of this is that you will also have to install and maintain the software applications and computer operating system. Because of the relatively low hardware requirements of a gateway computer (a 486 with two network cards forms the base system), the gateway computer is generally not used for anything other than running connection sharing software, as many modern software applications (and even operating systems) will not run on a 486. While it may

INTERNET CONNECTION SHARING IS OF BENEFIT ANYWHERE WHERE SEVERAL PEOPLE WOULD LIKE TO ACCESS THE INTERNET OR TELEPHONE LINE — TYPICALLY IN A FAMILY ENVIRONMENT.



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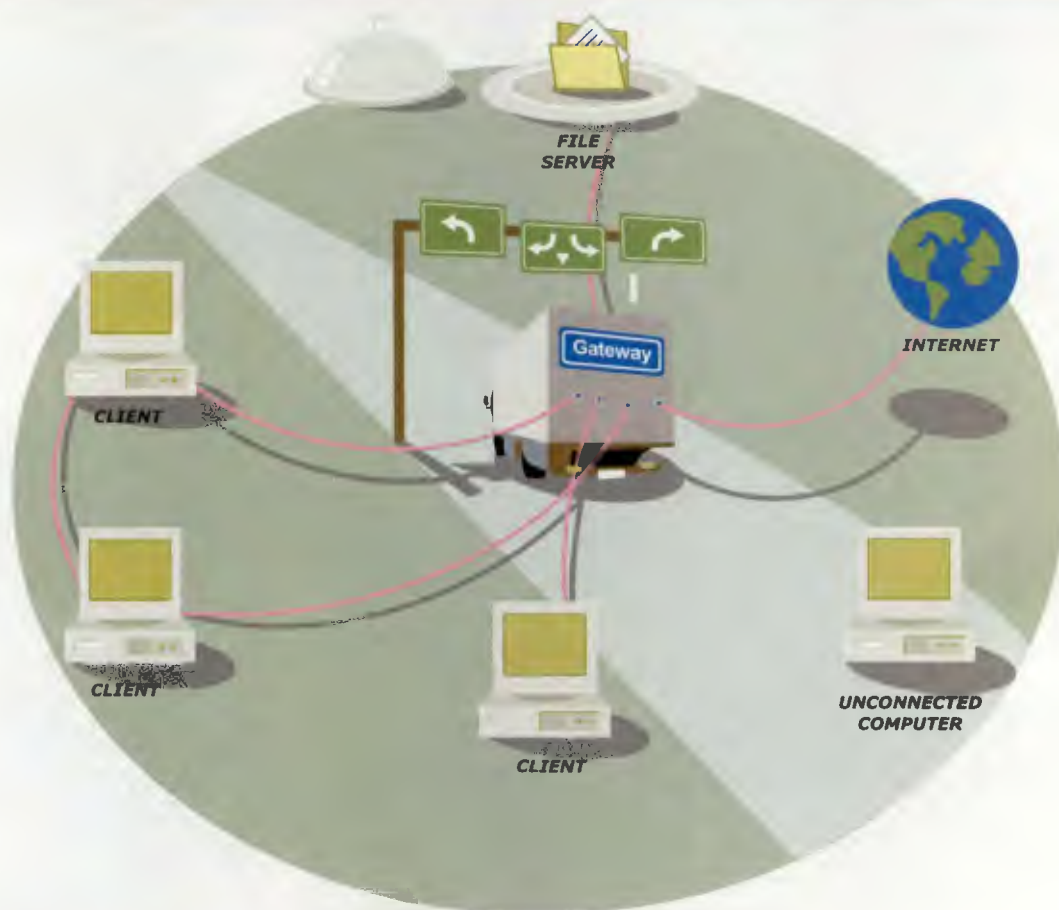
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A LOCAL AREA NETWORK

appear to be a good idea to share an Internet connection via a dedicated gateway computer, bear in mind that you will generally have to run an Ethernet hub off the gateway to connect your network computers to the Internet connection, and this will add more than \$100 to the cost of installing the gateway. The gateway computer also cannot be turned off without dropping the Internet connection, making it noisier and more expensive to run than a router.

WHY A ROUTER?

The other option you have, and it's generally the cheapest and easiest unless you have a large quantity of aging computer components gathering dust in a corner of your garage, is to buy a dedicated router to do the job for you. This has the advantage of being technically much simpler than using a dedicated machine, as you don't have to bother with software installations, juggling NICs and leaving a computer running constantly. Routers are generally coupled with switching hubs, so all you need to do is connect all the computers in your network to the router using RJ-45 cables (or a wireless connection if you have a wireless router), and then connect the router either to a modem line (if

you are sharing a dialup connection) or a cable or ADSL modem (if you are sharing a broadband connection). This means that the router will act as the gateway between your network and the Internet, sharing the connection from your ISP between the computers of your network.

WIRELESS

Instead of connecting the computers in a shared environment using a conventional hub (or router), RJ-45 cables and Ethernet cards, a more preferable option may be to try going wireless. The most obvious advantage of wireless over wired LANs is the lack of cabling that is required — laying cables through a house or apartment is expensive and time-consuming, and if you want to add another connection, you have to modify your cable infrastructure. Using a wireless base station and access points, you have near total freedom in terms of where you set up your workstations — you can even sit in a gazebo in your garden and use a laptop to connect to the Internet via a broadband connection in the house.

The current standard for wireless LAN communication, 802.11b, was approved by the IEEE in 1999 (Institute of



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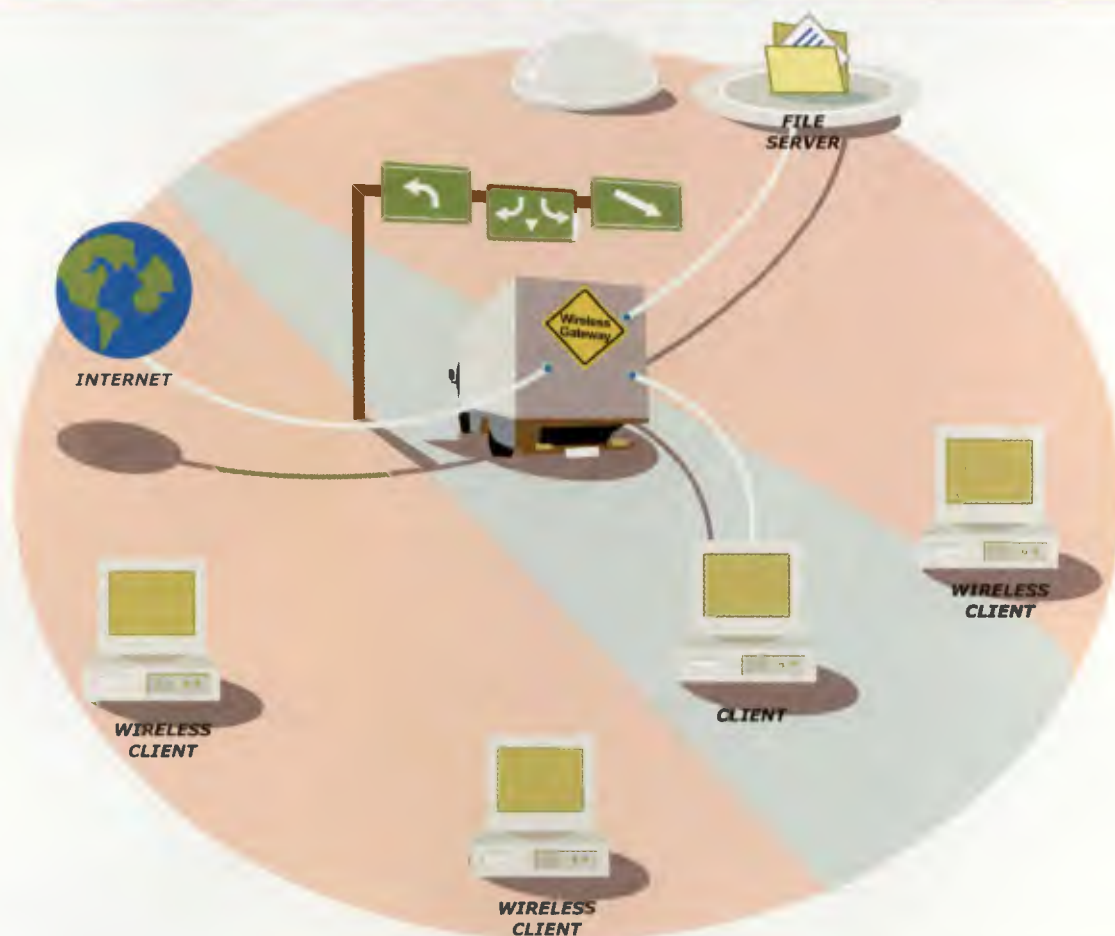
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A WIRELESS NETWORK

Electrical and Electronics Engineers, a research organisation that's responsible, among other things, for ratifying standards pertaining to data transmission). Wireless products that come under the 802.11b standard transmit data in the 2.4GHz frequency range at a maximum speed of 11Mbit/s, or approximately that of 10Base LAN connections.

To ensure data integrity and privacy, each user connects to the wireless hub and enters an encryption key. Data is then encrypted between the hub and clients, so anyone listening in will be unable to read intercepted data. Powerful wireless transmitters will broadcast data over a range of 45m, although transfer speeds will drop further away from the base station as the signal weakens.

CONNECTION SHARING — WHAT DO THE ISPs SAY?

Officially, Telstra doesn't support sharing Internet connections from home. Telstra's acceptable use policy includes the clause "our service offering provides an option to acquire multiple simultaneous user rights for an additional fee", and although Telstra's official position is that sharing is not allowed, extra fees can apply to the service. Charging extra per user is questionable, as there is no increase in the monthly data limit per extra user

— the amount of data that can be downloaded over the single connection is the same, irrespective of how many computers share the connection. From Telstra's point of view, there is no need to provide any extra support or bandwidth per additional user, so the extra cost to Telstra for you setting up a LAN at home is nothing. Provided that the monthly data limit of 3, 5 or 10GB is not exceeded, the number of users sharing a physical cable connection should be of no consequence to any service provider.

Optus' connection policy is somewhat more open than Telstra's; however, a distinction is drawn between a cabled or wireless LAN connection. Under Optus' acceptable use policy, you are expressly permitted to run a LAN off your cable modem for personal use; however, the policy states: "you must not provide Internet access to others through a dialup or wireless connection". Theoretically you are able to share an Internet connection between multiple users, provided you do not use a wireless protocol to connect the machines. There is no form of data that can be transmitted over a wireless link that cannot be sent using conventional cable Ethernet, and early security concerns about wireless protocols have since been addressed, so we question Optus' policy of refusing permission to share a connection over wireless.



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FIREWALLS

The benefits of running effective firewall software has been covered *ad nauseam* in *APC* in the past. Straight from the box, all versions of Microsoft Windows from 95 to 2000 are innately prone to attacks from hackers. A firewall is vital for protecting your PC (or network) against attacks from outside sources. Although a functional firewall application is included with Windows XP, most of the computers connected to the Internet are doing so unprotected. While many effective software firewall applications exist that can be installed on machines running Windows, a hardware firewall, as is included in a number of broadband switching routers, adds an extra layer of protection to your network. If a LAN is connected to the Internet via a firewall-equipped router, the hacker must first penetrate the defences of the firewall before access is granted to any of the machines that sit behind it on the network.

This doesn't mean that a hardware firewall will offer adequate protection from external threats. Hardware firewalls are based on NAT (Network Address Translation) technology, meaning that they are capable of rerouting an incoming data signal to a specific location, but little else. They monitor incoming Internet Protocol (IP) packets and direct data according to NAT. Ports can be blocked from incoming data using NAT; however, your IP is listed as active by any software scanning your ports, and IPs that are a part of your internal network (if you have a number of computers sharing a single Internet connection) are not hidden from hackers. Although the ports may be blocked, you are still visible to the outside world. If you are using a firewall router to screen off your network from the rest of the Internet, there is a good chance that hackers (or your ISP) can see any local computers on your network through it.

Software firewalls are both IP and application-based, offering a higher level of protection than just using hardware firewalls. Obviously, having a hardware firewall will provide a primary layer of protection, but it is not a substitute for a good software firewall such as McAfee Personal Firewall or Norton Internet Security.

TELSTRA'S HEARTBEAT

If you are connecting to Telstra's BigPond cable or xDSL network, one thing you'll need to check before you purchase a router, firewall, or other sharing device is that it supports Telstra's "heartbeat", and if not, that it's equipped with upgradable firmware. Telstra's Bigpond server sends out data packets much like "pings" to any computer that is connected via a cable or xDSL modem at regular intervals to make sure that client computers are still online and functioning correctly. If there is no response to the server's query from the client computer, the connection is relinquished, and you have to reconnect to Bigpond. Some routers do not know how to handle the Bigpond server's rhythmic data requests, and require firmware upgrades in order to avoid being disconnected when they fail to reply correctly.

DESPITE THE SECURITY FLAWS ASSOCIATED WITH HARDWARE FIREWALLS, HAVING THE FILTERING AND FIREWALL DUTIES TAKEN CARE OF BY A SINGLE ROUTER BEFORE ANY IP PACKETS MAKE THEIR WAY INTO YOUR NETWORK IS USEFUL — IT MEANS THAT YOU ONLY HAVE TO CONFIGURE ONE DEVICE.

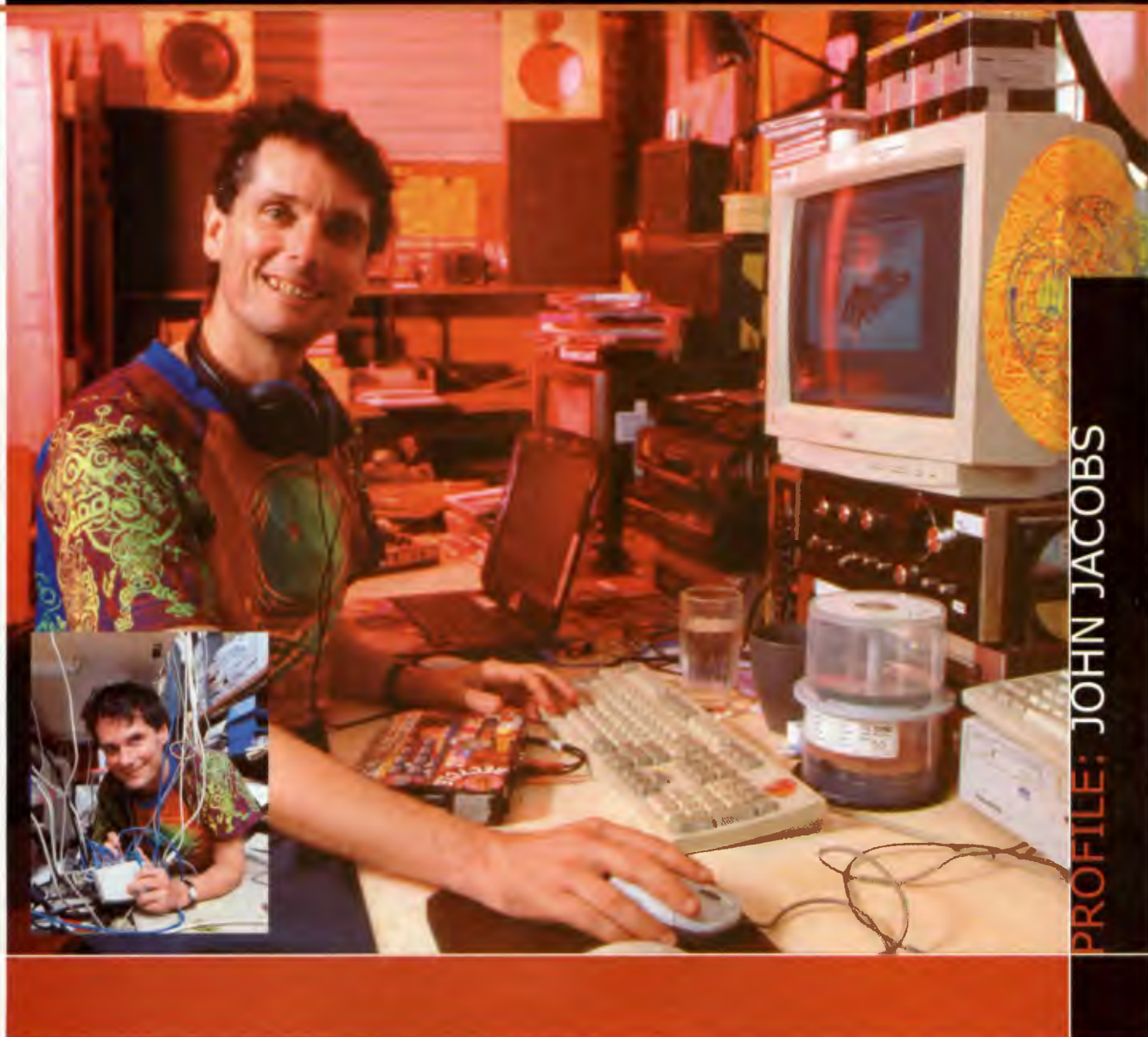
FILTERING

In addition to basic firewalls, several broadband routers also include built-in filters capable of blocking access to a predefined list of IPs. The list of banned IPs is generally updated via a browser interface and stored in the router, although the effectiveness of many of the filters based solely on IP filtering is limited by the fact that it's impossible to update the restricted site list to include every possible IP address containing offensive material. While IP filters enable you to block access to individual Web sites, content filters scan the incoming packets for keywords or file type headers and block the transmission of packets containing matching strings. Parents and IT departments which monitor the activities of other employees are the two main groups that use filtering software. The most effective filtering firewalls provide both IP and content filters, and many even enable you to restrict Internet access during specified times of the day in addition to logging attempts to access blocked sites and providing email notification to the system administrator.

There are several good filtering applications available for Windows that are just as effective as the hardware versions incorporated into filtering routers. These software applications work the same way as the router-level implementations, by filtering both IP and content and logging any attempts to access restricted sites to a log file or email address. Norton Internet security includes powerful filtering options, as do other commercial applications such as Superscout and NetNanny.

Despite the security flaws associated with hardware firewalls, having the filtering and firewall duties taken care of by a single router before any IP packets make their way into your network is useful — it means that you only have to configure one device to make changes to the filters and firewall that will affect the entire network. Setting up firewall and filtering software for each client machine on your network is a time-consuming and arduous process — you won't want to do it more than once.

"I HAD TO GET A CABLE CONNECTION TO MOVE
THE AMOUNTS OF DATA I WAS WORKING WITH."



NETWORKING THE SHED

John Jacobs networks his home like he plays his music: with an eclectic style and chaotic rhythm that all seems to come together in the end.

A sound engineer with ABC Radio by day and a musician with alternative techno band Organarchy by night, he's transformed an old backyard shed in Sydney's inner west into an MP3 publishing powerhouse.

Since he's had broadband, Organarchy's music has moved from the Sydney club scene to a worldwide audience. "We used to be madly dubbing up cassettes before gigs and handing them out to people," he said. Then the band set up a Web site, encoded their songs into MP3 files, and posted them on the Web for everyone to hear (www.mpfree.cat.org.au). "Two weeks after we put up the

site we heard from someone who said 'Hey, I was just in San Francisco and heard one of your tracks playing on the street.'"

John works among a collection of mixers, old PCs and miscellaneous electronic stuff mixing music and collecting sound bytes off the Web for new songs. He started off on a dialup connection, but Organarchy's songs are anything up to 10MB in size (or an hour of solid downloading on dialup). "I was working with larger and larger multimedia files, so I had to get a cable connection to move the amounts of data I was working with," he said. Eighteen months ago he made the move to broadband and hasn't looked back.

But while John was having fun in his high-speed haven at the bottom of the garden, up at the house, his partner, Suzanne, was still stuck on dialup. Then there were the hours he lost moving

files from his PC to his laptop. "I had to keep loading things on and burning them off on CDs." Things reached a head when he started combining visuals with the music, adding more megabytes to the mix.

There was nothing for it: they needed a network. "We could have spent \$500 or so and got another cable connection," he said. Instead, he walked into Dick Smith and asked for 60m of CAT 5 network cable. "The guy was so excited to be selling someone 60m of cable. He didn't even know how to roll it. To me, working in radio with loads of cable, it didn't seem that exciting, but obviously their idea of a network cable is 2m long." They spent the next Saturday on their hands and knees, tacking blue cable under plants, over walls, through the roof and into Suzanne's study at the front of the house.

Then came the hard part. The infrastructure was in place but John had to work out the right software to use. He read articles in *APC* and surfed a few Web sites, but was still unsure. "So I got hold of a guru friend," he said. They set up his PC as a proxy server (using ProxyPlus) and the network came online.

The network may have been active, but it was far from stable. "My computer's a grungy old 400MHz Pentium II that's been built on and built on. It's like the city of Sydney — crazy and not laid out properly, with little disk drive slums all over the place." On the other hand, Suzanne's 850MHz Athlon is a no-nonsense number-cruncher. "Suzanne wanted her machine on all the time; she didn't want to have to worry about what's happening up at the shed, so my computer had to be running and stable all the time." His

much-loved PC was booked in for major surgery. "But in the end I just couldn't bring myself to drive a bulldozer through this city I had built," he said.

"The solution was to get a server — a basic machine that would be on all the time and also act as a firewall for a bit of security." He and Suzanne rummaged through a local computer fair and scored a 300MHz Pentium II. "It runs great and it's got this cute 9in monitor. I mean, what do you want for \$160!"

He transferred ProxyPlus on his new machine and linked Suzanne's PC to his multimedia monstrosity. Suzanne was instantly online, but down at the shed, it was a disaster. "When I connected my multimedia machine, it didn't like being behind a firewall. It mucked up my FTP, it mucked up my mail and it mucked up my browsing. I had to rebuild everything again."

He was bogged down in software loops, IP configurations and command lines for days. "I'm used to Windows applications, so it was pretty spooky." He went back to his guru (bribing him with a gift of a rice cooker) and with a little more sweat and swearing, the network came alive. "Each little bit I get going feels really great and productive. I watch files moving from one computer to the other and I'm happy." But he still can't use Eudora or FTP. "I'm using Web-mail right now, but the FTP is still down and I want to publish new tracks, so the pressure's on. My guru is off to China, so I'll have to work it out myself. The story isn't finished yet."

Fiona Angus

HOME SWEET THOME?

It was meant to be the ultimate Internet home.

You could surf the Net from every room on giant Sony flatscreen monitors and Compaq PCs, chat on video phones, shop for groceries through the fridge door, boil the kettle from the bedroom, monitor the entire house on a system of Webcams, program temperature changes, water the garden, switch off the lights upstairs or open the front door to guests while you were on the third floor — essentially, you could control every electronic device on a high-speed satellite connection through your "Home" page.

So why didn't anyone want to live there?

Cisco created the iHome in Jacksons Landing, an upscale urban development in the shadow of the Sydney Harbour Bridge. Seventeen companies, from Sony to Sunbeam, packed a quarter of a million dollars' worth of the latest technology into the luxury three-story home.

"Once you see all the gadgets and toys, you will want one," declared Cisco managing director Terry Walsh at the extravagant launch in August 2000. Guests slouched on couches under a huge tent, waiting to tour Australia's first Net-enabled home. To preserve the iHome's sale value, no shoes were allowed on the plush carpet. The plan was to show off the iHome as Australia's first Internet-enabled home, then sell it intact for more than \$1 million.

But by the following year, nearly every piece of technology was removed and the iHome was sold as an empty shell.

"Frankly, it was a turn-off for some people," said Graeme Meers, sales director of Jacksons Landing. "I mean, do you know anyone with a home setup like that? No."

Now, the only visible signs that this nondescript terrace house was a pioneer in Australia's Net history are some automatic curtains and a few security cameras. Metres of Cisco wiring lie unused inside the walls.

The couple who paid \$950,000 for the house showed little interest in its earlier life. "It sold because it was the last terrace house in a group of 63. The price was reached irrespective of the technology. There was no premium paid and I wouldn't ask for a premium." It's not something Meers plans to try again. "I'm in the business of selling property and this didn't advance my cause."

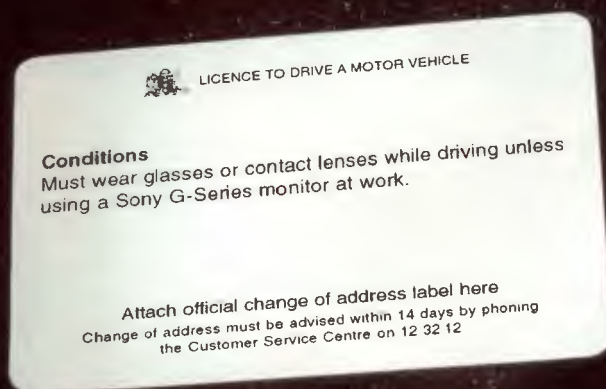
Cisco public relations manager Peter Witte said the iHome was designed to showcase the potential of the Internet to Australian home-buyers and builders. "The whole point was to show people what is possible," he said. So, from Cisco's perspective, the iHome was a success.

Meers adds that although the iHome created a lot of publicity, "it didn't generate one sale".

Fiona Angus

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PROFILE: THE WILSON FAMILY

JUGGLING ACT

Deep in the Melbourne suburb of Brighton, a three-bedroom house runs a sophisticated high-speed Linux network. However, it took quite a lot of trial and error for family network administrator Jonathan Wilson to get it that way.

His Internet nightmares started just before he left his job. It was October 2000 and dialup just wasn't working anymore. "Sharing a telephone connection was always a bit of a contentious issue for us," he said. His wife Carol was running her public relations firm from their converted garage in between running the media room at the Colonial Classic tennis event and coordinating book launches. Meanwhile, 12-year old Timothy was busy downloading the latest MP3s and games.

Jonathan hooked the family up to broadband. He set up Carol's 600MHz Pentium III as a makeshift proxy server using WinGate, and used his Dell notebook to surf the Net via her PC. It was all going smoothly, but over Christmas, the software company he helped to found became another victim of the dot com crash.

The network came under strain when he decided to work as an independent consultant. "It was hard, after being with a company for 12 years." He needed the Net to download software, and to email and keep in contact with clients. "The trouble was that I had to turn my wife's machine on to get on to the Net. I was never quite happy with WinGate because I couldn't get MSN Messenger

to work and I was never quite sure whether my wife's machine was being hacked into or not."

Then the trouble really began. "My kids started to play games on Carol's machine. My son had icons all over the place and funny things started to pop up. Then the word processor stopped working and the router started going slowly. It was a pain," he said. "So I decided to put in a real router so everything's behind the firewall."

He investigated the standard Windows fare. "A friend had installed WinRouter and the cable connection had collapsed." There was nothing matching his criteria: sophisticated, secure, stable and free.

The solution? Learn Linux. "It was a daunting task," he said. But with 25 years of IT experience and a computer science degree from Monash University, he did it. He subscribed to the daily Windows/Linux Lockergnome email where he discovered SmoothWall, a sophisticated, Linux-based firewall and network gateway.

That solved the networking problem, but Timothy was still hovering. "I got my son his own computer," he said. He's configured SmoothWall so Timothy has to ask Dad before he can surf the Net. "SmoothWall had the necessary features so I could stop my kids from getting on the Web if I have to."

Soon eight-year-old Alice will take her place on the network. "I think I'm going to have to get another machine for my daughter or she'll be left out." He's also setting up a dedicated server and wants to use his old Gateway Solo as an experimental Linux machine. That will make it seven PCs on his network.

Meanwhile, he's scored three big projects developing Web-based application software and they're branching out into new business marketing keyboards for handhelds. "It's worked out really well and it's opened more opportunities."

When APC met the Wilsons, they were polishing off some renovations and Jonathan had scheduled in some network down-time. "Carol hasn't had her computer online and she's just going crazy."

Fiona Angus

WORDS FROM THE WISE

Jonathan Wilson: "It's fantastic that we can all work through the one cable connection. But to do this, you need to be fairly well versed in how these things work or know the right questions to ask. Getting the wrong solution can really slow you down. I mean, if you're just trying to do a job and the technology is actually stopping you then you're really better off not putting the network in at all because it's just going to be too much trouble."

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3COM HOMECONNECT

After you've plugged this router into a WAN connection and inserted the wireless interface cards into the client machines, you simply use a Web browser interface to configure it. The setup wizard is extremely simple.

The router includes three 10/100 Ethernet ports so you can combine wireless and cabled networks. This is an advantage over the Apple unit, where no external Ethernet ports are provided and a hub is required for sharing a wireless and cabled network.

One drawback is that the 3COM unit doesn't feature the ability to plug in extra switching hubs downstream from the router, so you are limited to three wired connections; all other clients must be connected wireless.

The 3COM unit had the strongest signal of any of the wireless units that we looked at — the signal stretched reliably for 80m (although walls and other solid objects reduced this, as the 802.11b WiFi standard uses radio waves for transmission of data). The further the client computers are from the router, the weaker the signal becomes,

and transmission speed drops. As the distance increases, the speed falls to 5Mbit/s, then 2Mbit/s, and finally 1Mbit/s automatically and transparently; the only thing you notice is that Web sites take longer to load. Although the router is advertised as supporting up to 35 users, the transmission speed to each user would be appalling. The unit works well with up to eight users accessing the router; however, if there are any more downloading data simultaneously, performance will be hindered.

The 3COM unit includes 40-bit encryption, which does provide an extremely high level of protection for home users, but it's inferior to many modern wireless transmitters that incorporate vastly superior 128-bit encryption. A NAT-based firewall is also featured. It's by no means hacker-proof, but it does provide a low level of protection to your network — an improvement on the ORiNOCO device. VPN tunnel pass-through is supported, including L2TP, PPTP and IPSec protocols.



Contact 3COM
Phone 1800 644 606
Online www.3com.com.au
Price \$495
Verdict ■■■■

APPLE AIRPORT

The AirPort Base Station is the most aesthetically pleasing of the bunch, bearing a resemblance to the iMac in styling. It's a simple design: at the rear is an RJ-11 connector so that you can plug in a telephone line and share a modem connection between clients of a network. Also included is an RJ-45 socket to facilitate plugging your AirPort base station into an Ethernet connection. Although the Ethernet port is only 10Base, the 11Mbit transmission limitation of the WiFi standard (IEEE802.11b) means that this is almost unnoticeable.

Unlike the Netgear wireless hub, the AirPort system doesn't include an integrated switching hub, so if you intend to share wireless and cabled networks, you will have to purchase an additional hub. Unfortunately, you can only share a modem connection using the AirPort, unless you attach an external router and cable or DSL modem.

The AirPort system achieves a broadcast range of approximately 45m using radio waves, although this is greatly affected by the number of walls and obstructions that the signal passes through. The Apple unit features a limit of

10 simultaneous users per base station, which is ample for all but the largest homes, especially considering the 10Mbit limitation on data transmission for 10Base Ethernet.

The Base Station has built-in DHCP and NAT servers, and 128-bit encryption is available to protect the data between the base station and the AirPort cards (although you can use alternative cards, as the Base Station is interoperable with other 802.11-based equipment). Configuration is performed using the AirPort software (for MacOS 9 and OS X) or a Java-based configuration applet.

Apple's wireless base station has been suffering from negative publicity recently due to reports of overheating in the power supplies, which leads to capacitor malfunction after 12 months' operation. You can find out more information in Apple's discussion groups, located at discussions.info.apple.com.



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Verdict ■■■■



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The Colour of Business

The Netpassage has an extensive list of features and supported protocols, including RIP (Routing Information Protocol), DHCP server function, NAT (Network Address Translation) with either single or multiple IP translation, PPPoE and built-in support for Telstra's BigPond cable connection.

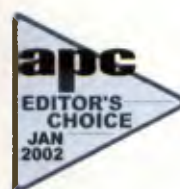
The Compex unit features support for Telstra BigPond in the form of a setup wizard that enables you to set up the connection correctly with a single mouse click. Manual configuration is required if you are connecting to another service provider in Australia. Optus@home's cable network is mentioned in the manual, and while there is no wizard to make configuration with Optus easier, the details given in the manual are sufficient.

Support for up to 253 users is provided, which is ample for any home or small (or even medium-sized) business. The configuration software is browser-based, and it's well laid out. The BigPond setup wizard and detailed manual mean that you can have your network up and running within 15 minutes. Also included

was a floppy disk containing the latest firmware upgrades for the router. This ensures that your router is loaded with current firmware before you start using it.

Access controls and packet filtering options are included with the firewall. The access control enables you to restrict access to sites at certain times of the day, or after a limit has been reached. This enables parents to exercise great control over their children's surfing, as they can limit Web browsing to a certain time of the day, and block access after a specified time limit has been reached.

RIP support is also included, which enables you to daisy-chain switching hubs off the router, meaning that you can connect extra Ethernet hubs to a single unit. Everything that you could possibly need is included with this device, with the exception of Ethernet cables — RIP, DHCP, NAT, PPPoE and filtering support are all featured.



Contact LAN 1
Phone 1300 301 413
Online www.lan1.com.au
Price \$399
Verdict ■■■■

This is the most understated of all the Internet sharing devices. Four local ports and a WAN port are located at the rear of the ventilated case, although the first socket is shared with an uplink port, meaning that you can daisy-chain a string of routers together to share the Internet connection between a larger group of people — up to 253, which is the limit of DHCP.

A port-blocking firewall is included, along with filtering functions that enable you to restrict data based on IP, protocol or port number, meaning that you can block certain members of the household from accessing predefined Web sites. Like the Compex unit, the D-Link router features built-in support for Telstra's login procedure, but if you want to use another ISP, you will have to configure the router manually.

The documentation supplied is clear and concise, and the unit ships with a quick-start guide that unfolds to take over all available desk space. Like most of its competitors, the DI-804 uses a browser configuration application to set up connection settings and data-handling procedures. Filter lists and



firewall parameters are also updated via the browser-based configuration screens. D-Link has included support for DHCP, so the router can act as a server or client whilst maintaining NAT functionality.

The impressive list of features includes support for Virtual Private Networking (VPN), including PPTP Client/Server Pass Through, L2TP Pass Through and DHCP Relay, which enables you to let routers on the other side of the D-Link unit assign IP addresses to clients connected to daisy-chained hubs. Although most homes will not require more than four client connections, the ease with which you can daisy-chain the D-link helps make it flexible for future upgrading of your network.

From D-Link
Online www.dlink.com.au
Phone 1800 177 100
Price \$493
Verdict ■■■■

The Intel Express 8220 Router differs from the other units in that it doesn't feature a switching hub. The enormous ventilated case of the 8220 only bears a single uplink port and a single WAN port, meaning that you will need to connect a hub in order to share an Internet connection between several networked computers.

The supplied setup software, named Device View, is used to configure the 8220 and offers a contrast to the browser-based implementations common to most other routers. The printed manual is detailed and concise, and is extremely helpful when configuring the firewall and filter lists in Device View. The manual gives several examples of how to set up a network depending on your needs (dubbed "scenarios"). This includes setting the router as a DHCP server and configuring it to work in conjunction with a larger network by using existing static or dynamic IPs.

An installation CD for 3DES and Intel Netstructure VPN is included. The router can establish secure and encrypted data tunnels for



establishing small, closed "virtual" networks within a larger WAN, such as the Internet. VPN is largely unnecessary for anyone who wants to set up a home network, unless family members are working from home for a company that uses VPN.

Based on the advanced VPN support, it can be inferred that the 8220 is aimed at small to medium businesses that are already networked but require connection to the Internet. In this case, the LAN infrastructure (be it wireless or cabled) already exists, and an integrated hub and router is therefore unnecessary. Although the 8220 is overkill for most home users, especially given that you will need to add a hub and network cards if you don't already have a local network running, it is an ideal solution for small to medium businesses.

From Intel
Phone (02) 9937 5800
Online www.intel.com.au
Price \$1,590
Verdict ■■■■

"The more features and functions it has, the less you need to dress it up" would seem to be one of the givens of technical hardware products such as routers. To judge by the appearance of Micronica's SOHOMate, it must be brimming with functionality. It's not much to look at, with a rather plain, industrial-looking metal case design, and flashing LEDs that don't quite line up with the stick-on face plate. The presentation isn't helped by the tacked-on Micronica sticker either.

However, that's about all the criticism that you can level at it, because nearly everything else about this router is a treat. Packed with features, it not only lets you connect up to broadband services from Optus and Telstra, it carries a nine-pin serial port as well, so you can attach a 56Kbit/s modem for use with standard dialup PSTN accounts.

What's more, it's also endowed with a print server for sharing printers via its built-in parallel port. The drivers for this purpose are supplied on a CD-ROM and the driver software installs its own port in the operating system's printer



settings. Although the router/Internet sharing is cross-platform, the print server drivers are only available under Windows and Linux systems.

The SOHOMate is easily configured via a simple Web browser interface with the usual array of optional settings for changing the built-in NAT firewall settings. The layout of the router box has the four LAN ports on the front and the WAN, serial and parallel ports around the back, which means that you end up with a bundle of cables coming out of either side of the box. It's best to mount it on a wall or under your desk if you're concerned about a messy setup. If getting the most out of an Internet sharing router for the least amount of money is what you're after, however, the SOHOMate HiP-400S is more than up to the task.

Contact Micronica
Phone (03) 9699 8844
Online www.micronica.com.au
Price \$397
Verdict ■■■■

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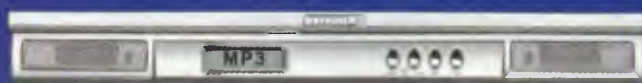
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The NetComm I-share is housed in an unattractive beige box, and is designed to share a dialup Internet connection over a LAN. Although it's best to avoid browsing the Web on four computers connected to the Internet via a single 56Kbit/s modem, there are still large areas of Australia that don't have broadband access, and for some, a modem is the only connection method available.

The router is configured via a browser-based configuration screen, and it is easy for relative newcomers to networking to configure the network and apply flash upgrades that are downloadable from the NetComm site. As the I-share runs on an embedded version of Linux, you can also telnet to the unit and configure it manually; however, most will use the browser-based method. The NetComm router also features a basic packet-filtering firewall and filtering options. You can configure individual access settings for each user, or establish rules that apply to anyone accessing data from across the network.

If your Internet connection is idle for a period of time, you can configure the I-share to disconnect automatically and free up a telephone line for voice calls; this can be used to make sure that the modem hangs up after everyone on your network downloads their email.

The LAN connections on the I-share are only 10Mbit/s, which, while being adequate for wireless transmission and local video streaming, is below the performance of many home and most office networks. If you are looking to share a dialup Internet connection with several users of a LAN, then you are better off looking at the Micronica unit rather than the NetComm. Although the Micronica router doesn't feature a built-in modem, external modems are inexpensive and the additional cost of a modem would make the Micronica package about the same price as the I-share, but your internal network would be running at 100Mbit/s.

From NetComm
Phone (02) 9424 2000
Online www.netcomm.com.au
Price \$528
Verdict ■■■■



In addition to the RP114, we also examined the Netgear MR314, which is designed to include a less powerful firewall and filtering options than the other Netgear model, but also includes wireless transmission capabilities. A single RJ-45 Ethernet cable and an adequate software package for configuring and installing the router are included.

The MR314 features four local Ethernet ports and a WAN port, so you can still use the unit in conjunction with a conventional wire-based LAN, in addition to any computers that are fitted with wireless network cards, although there is a 50% decrease in throughput to the LAN ports when wireless connections are enabled. The unit is compliant with 802.11b and broadcasts at a maximum of 11Mbps over a range of 40m via a short antenna on the rear of the unit, and supports 64 and 128-bit wireless WEP (encryption for wireless transmission).

One drawback of the MR314 is in its handling of domain and host name assignment. When you opt for basic setup, you are

able to enter your own domain and host names. However, if you select the "NAT with Fixed Address" mode of addressing, you lose the ability to name your own host. Ideally, you should be able to name the host and then assign an address to the defined host, although it is not crucial.

Configuration of the MR314 is browser-based, although you can still telnet to the MR314 if the older command-line interface doesn't faze you. It is possible to set up filtering of ActiveX, Java, cookies or access to external proxy servers, but there are no port filtering options included.

While it is beneficial to be able to connect both a wireless and cabled LAN to the Internet via a single router, the benefits are substantially marred by the fact that the throughput drops by half when using both simultaneously.

From Netgear
Phone 1800 787 638
Online www.netgear.com.au
Price \$879
Verdict ■■■■



NetGear's RP114 is only one of several products on the market to offer Web filtering. Filtering at the router level means less hassle for users, especially parents who are concerned that children may get around PC-based filtering software.

The RP114 is a four-port hub, perfect for a small home or home office network that has a connection via cable, ISDN or ADSL. The Web content filtering, reporting, and administration is all done within the router, using any Web-standard browser.

Installation of the router is simple. The built-in DHCP server automatically allocates an IP address to any device, including printers (if they are network-enabled). The HTML pages are clear, and have wizards to guide first-time users through the configuration of the router.

The content control feature can restrict access to specified URLs, times of day, or defined words embedded in the HTML pages. The router can independently configure each port, allowing certain users unrestricted access at all times, while blocking offensive material for other users.



NetGear Australia has configured the client within the RP114 router to do all the cable or ADSL authentication. Particularly for cable, it includes software to enable the "heartbeat" for Telstra's BigPond, so each client computer doesn't need the Telstra software — the router does it for you. Using the RP114 on Telstra's ADSL or Optus' Cable presented no problems — the client worked perfectly.

The unit will hide your internal network address from hackers. If they manage to find the router IP address, the firewall software within the router stops any attempts to get into a connected computer.

As there are only four ports, the original number of connections is limited. However, with the built-in DHCP client, plugging another hub into a port will expand the port count.

NetGear RP114

Contact Netgear

Phone 1800 787 638

Online www.netgear.com.au

Price \$499

Verdict ■■■■

Manufactured by Agere Systems, this popular wireless networking kit has been adopted and rebadged by several companies including Compaq and Avaya. The Orinoco RG-1000 is therefore not much different from the Compaq Wireless LAN kit reviewed in the August 2001 issue of *APC* (page 112). Even the curvy upright case is identical.

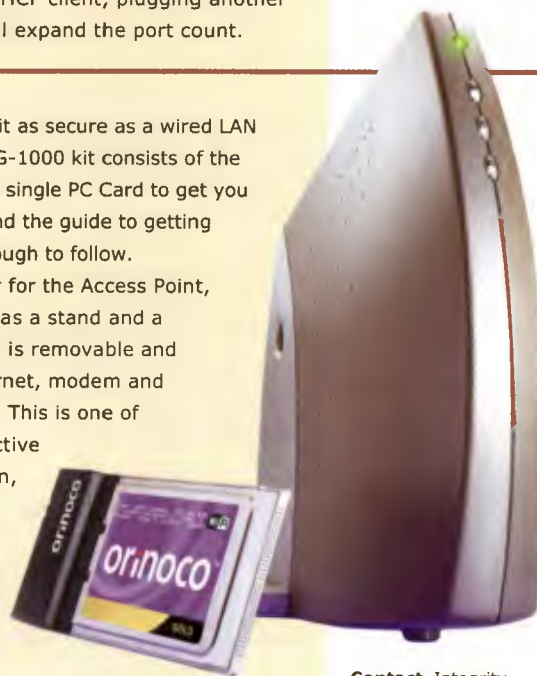
Designed as a wireless Internet gateway for dialup accounts, the RG-1000 features a built-in 56K V.90 modem, but also caters for ADSL (PPPoE modem), Cable and ISDN connections. Configuration of the RG-1000 is through a Java applet that you install on your PC and which gives you basic setting options depending on the type of setup you have. Though the software makes setting up the access point extremely easy, this is due more to the lack of options rather than to a well-designed interface.

It also misses out on basic firewall protection, which is a serious omission considering its intended purpose. The only notable security feature is the standard 64-bit WEP encryption

designed to make it as secure as a wired LAN connection. The RG-1000 kit consists of the Access Point and a single PC Card to get you up and running, and the guide to getting started is easy enough to follow.

The back cover for the Access Point, which also serves as a stand and a mounting bracket, is removable and conceals the Ethernet, modem and power connectors. This is one of the more attractive designs we've seen, apart from the ever-elegant AirPort Base Station, of course.

Considering that the equivalent Access Point from Compaq cost \$795 on its own last August, the Orinoco RG-1000 Residential Gateway kit is good value if you're ever considering going wireless. Just make sure that you run individual firewall software on each PC. ■



Contact Integrity Data Systems

Phone 1300 131 000

Online www.integritydata.com.au; www.ezywave.com

Price \$699

Verdict ■■■■

SPEAKER CHALLENGE



THE SOUNDS OF ANGELS

IN THE DECEMBER ISSUE WE BROUGHT YOU THE HOTTEST SOUNDCARDS ON THE MARKET. THIS MONTH, WE GO ONE STEP FURTHER — IT'S ONE THING TO HAVE A GOOD SOUNDCARD, BUT WITHOUT THE SPEAKERS TO MATCH, YOU'VE ONLY GONE HALF THE DISTANCE.

By Daniel Gardiner

As any music enthusiast will tell you, good speakers make the difference between a pitiful sound system and an exceptional one. All the speakers here have values given in "watts RMS". Generally, the greater the wattage the more powerful a system is — and the higher you can crank up the volume.

To judge speaker sound quality, APC Labs employed two main criteria: how a system handled music, and how it coped with surround. With music, we were looking for all the usual things: sharp clarity, full body and deep, bouncy bass. Surround is harder to test, because it requires all this and more. Great surround requires excellence across the

spectrum. Most of all, our assessment of a system's surround qualities was based on atmosphere. That is, the impression that you are directly participating in the action of the game or movie — a total sense of immersion and involvement.

For our test set-up, we used a Creative Audigy soundcard and set aside a semi-soundproof room for testing. All speakers tested were placed in the same positions. For DVD testing, we used three films that all require a good range — *The Matrix*, *Fight Club* and *Saving Private Ryan*. Certain scenes were used to test both general playback and surround. For gaming, we used *Thief 2: The Metal Age* (which has some of the best use of 3D sound in a game to date) and an assortment of more action-oriented titles. Lastly, for our music tests, we used several famous classical tracks (including "Ride of the Valkyries" and the theme to *2001: A Space Odyssey*) and an assortment of more general music. We also inflicted a stress test to see whether speakers would distort at high volumes. This was done using the *Fight Club* soundtrack, which is particularly demanding in both bass and treble.

▼ We had high expectations for this THX-certified set from speaker giant Klipsch. Sporting an 80W subwoofer and four 30W satellites, in terms of sheer power it surpasses all of the other sets here except the Altec Lansing system. The speaker controls are about average, with individual volume control knobs (for subwoofer, surround and main) on the front-right speaker. The downside to this is that there's an additional three cables to deal with, which is both annoying and clutters desk space.

Surround playback was first-rate, with nice clarity and full midrange and treble. Gunshots sound scarily real, and the effects and voices were amazingly crisp and sharp. The Promedia copes OK without the centre channel, but falls short of the Altec Lansing 641 in this respect. The Klipsch set was miles ahead of the other sets we tested in terms of clarity — the satellites produce simply outstanding audio. Klipsch has struck the perfect balance between solid bass and

amazingly crisp treble.

This pays off especially well for music playback, with all music sounding both natural and precise. While the satellites coped very well in our stress test (with no noticeable distortion), the subwoofer had an unsettling tendency to choke on bass-heavy beats. This was more noticeable when the bass was turned up high: beats would skip and the music would become uneven as the subwoofer struggled to keep up.

The Promedia is a fine set of speakers, with exceptional clarity in treble and midrange, and generally good bass performance. Like the Altec Lansing 641, it's slightly let down by the lack of a centre channel, which is particularly important for placing the viewer "in the zone". If you don't have high bass requirements, this is an excellent set.

Wattage (RMS): Subwoofer 80W; satellites 30W — 200W total

Cable length: L/R 3m; L/R surround 6m



Contact Innovision
Phone (03) 9817 7988
Online www.klipsch.com
Price \$749
Verdict ■■■■

▼ Creative's mid-range set is, in fact, equal lowest in power with the Yamaha TSS-1's; it is outclassed even by the budget Hercules XPS 510. But speaker power isn't the only thing that counts, and despite having only 6W per satellite and an 18W subwoofer, it still manages to hold its own.

The controls are fairly limited — you're pretty much restricted to tweaking the volume and altering the left-right balance. A bass control positioned on the back of the subwoofer gives a significant increase in the low-frequency performance. If you're like us though, you'll be fiddling with it quite a bit depending on what you're listening too — and having to stoop under your desk every time you change it is annoying.

Surround was very nice, with excellent clarity and good atmospheric. The "Bullet Time" sequence in *The Matrix* and the beach landing in *Saving Private Ryan* both sounded great — with bullet effects zinging around the room and creating a fairly immersive and believable environment. The subwoofer occasionally seemed a tad underpowered

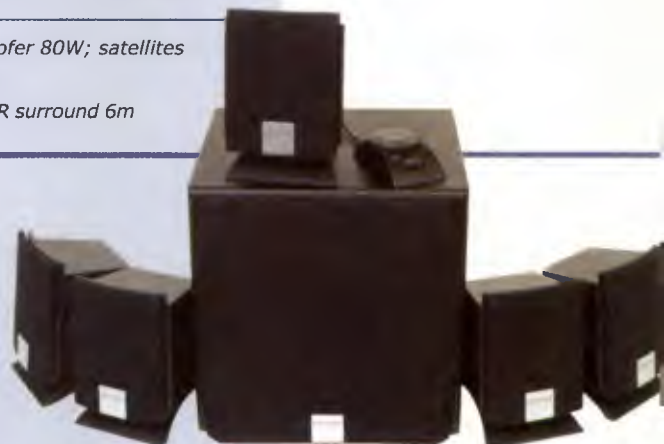
in the more aurally challenging scenes, but overall it managed to impress.

The subwoofer also boosts most types of music, but at high volumes the bass can drown out the clarity of the treble. It passed our stress test with flying colours, with a great bouncy bass response, accompanied by good body and clean treble. There was no audible cracking or distortion at high volumes, although the treble became vaguely shearing rather than crisp on certain tracks.

This is a respectable set for people with discerning ears. It doesn't quite have the range of some of the more powerful kits such as the Altec Lansing or the Klipsch systems, but if you're looking for a good quality (but still affordable) set, this system is recommended.

Wattage (RMS): Subwoofer 18W; satellites 6W — 48W total

Cable length: L/R/C 2m; L/R surround 5m



Contact Creative Labs
Phone (02) 9666 6100
Online australia.creative.com
Price \$399
Verdict ■■■■

SPEAKER CHALLENGE

HERCULES XPS 510

Hercules' offering in the 5.1 department is tailored for people on a budget — at a mere \$199, the XPS 510 is the cheapest full surround set you'll find. A 20W subwoofer is accompanied by five 8W satellites, which gives the set a decent (if not overwhelming) amount of power. However, buyer beware — speaker wattage isn't everything, and you get what you pay for.

The 510 does a fairly good job of creating a surround environment. Sadly, it's not a totally realistic one. Most of the audio is slightly muffled and subtle sounds can sometimes be missed. Voices were fairly clean and audible, but when testing DVD playback using *The Matrix*, the effects sometimes drowned out the background music.

Music was also noticeably muffled for the vast majority of tracks — lack of clarity is the system's main flaw. Classical music suffers the most from this: "Ride of the Valkyries" (our second classical test) sounded like it was coming out of a tinny 1950s radio.

It also had problems

with bass: the low rumblings in *2001*:

A Space Odyssey were barely perceptible with the default bass setting, and only slightly better with it turned up to full.

Not surprisingly, the 510 also had serious issues in our stress test. At high volumes the subwoofer started emitting sharp buzzing sounds — not good at all. More general music also sounded slightly off-key, and there was a synthetic resonance on a lot of tracks.

Despite its numerous shortcomings, you'll be hard-pressed to find a better set of 5.1 speakers at this price. If you absolutely must have the full surround experience, but have a strict budget, this isn't a terrible choice.

Wattage (RMS): Subwoofer 20W; satellites 8W — 60W total

Cable length: L/R/C 2.75m; L/R surround 5.75m



Contact Guillemot

Phone (02) 8303 1818

Online au.hercules.com

Price \$199

Verdict ■■■■

PHILIPS MMS 306/A

Philips has taken the stylish road with its MMS 306/A set — it sports NXT ultra-slim speakers. The system boasts a subwoofer with two 25W drivers and five 10W satellites. The subwoofer is somewhat small compared to some of the others here, but given its size it still manages to kick out a fairly nice, round bass. It also comes with an infra-red remote control — the only one out of all those we tested. This is both a blessing and a curse. It's got a fairly decent number of options, such as tweaking treble and bass, but the included display does a poor job of telling you exactly how it's set.

The set's surround abilities are fairly decent, especially in low-key games like *Thief*, where the focus is more on atmosphere than explosions. Most movie playback was also good, although the bass was slightly disappointing. Action films usually call for a fair amount of subwoofer power and this system sometimes had trouble keeping up.

Overall music quality was good, with agreeable treble and mid-range. However, music suffered noticeably on the default

bass setting. Turning the bass up does help to alleviate the problem, but it's still far from perfect.

In our *Fight Club* soundtrack stress test, there were some disturbing effects at maximum volume. While the subwoofer pumped out a pleasant, round bass, the satellites were less impressive. At high volumes they let out a fair number of pops and cracks at particularly heavy points. The *2001: A Space Odyssey* main theme sounded slightly weak, even with full bass — the build-up wasn't as charged as you'd want, and the crescendo wasn't as mind-blowing.

Overall, this is a decent 5.1 set, which unfortunately focuses more on style than performance. The NXT satellites have fairly good clarity but they do have problems with high-volume bass, and the shortcomings of the subwoofer may turn many users off.

Wattage (RMS): Subwoofer 2 x 25W; satellites 10W — 100W total

Cable length: L/R/C and L/R surround 3.5m



Contact Philips Electronics

Phone 1300 651 993

Online www.philips.com.au

Price TBA

Verdict ■■■■

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ti1001 *ti series*

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\$1665

pt2001 *pt series*

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Gigabyte GF2 MX400 64MB w/TV out
Creative DTT5300 + SBLIVE! 5.1SE
A-Open KF45A (P4) Midi Tower
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Netcomm 56K Int. Lucent Modem
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ir4000 *ir series*

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Server Software Optional

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\$2929

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Microsoft Intelli Optical Mouse
Creative DTT2500 5.1 Speaker
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SPEAKER CHALLENGE

YAMAHA TSS-1 Yamaha's TSS-1 promises a lot. It's got built-in decoding for DTS and Dolby Digital, as well as both RCA and S/PDIF digital inputs. Its speakers, however, are low powered, with only 6W per satellite and an 18W subwoofer. As the system only supports 5.1 via its digital connections, you'll need a soundcard with digital RCA or S/PDIF outputs. This effectively rules out lower-end soundcards, so those without digital-out will have to put up with 4.1.

Surround sound was a mixed bag. The system was more than adequate for low-key games like Thief 2, but for more demanding action-oriented titles it had some shortcomings in the bass. Explosions didn't seem to have quite enough of a sonic impact. You can still feel the bass, but the aural side is lacking. The same can be said of movies. While the satellites produce fairly crisp treble (so high-frequency effects and string instruments sound clear and sharp), the subwoofer had trouble producing some of the more bass-heavy sounds.

The satellites and subwoofer are very finely tuned to each other, so if you push either one too far you get slight distortions.

Certain music types were weak as well. While the satellites had good clarity during our classical tests, the subwoofer once again lacked punch on heavier beats. More general music occasionally felt slightly hollow — the midrange had trouble filling out, no matter how much you pumped up the subwoofer.

With the TSS-1, Yamaha seems to have focused on connectivity, features and keeping the cost down. While the system offers crisp treble, it does fail to deliver when fronted with demanding bass, so if you like your sound *big* it's never quite satisfying.

Watts (RMS): Subwoofer 18W; satellites 6W — 48W total

Cable length: L/R/C 2m; L/R surround 7m



Contact Yamaha Music
Phone (03) 9693 5111
Online www.yamaha.com
Price \$499
Verdict ■■■

ALTEC LANSING 641 Mammoth. That's the only way to describe the subwoofer that comes with this set. It weighs an absolute tonne, packing twin 6.5in drivers in a very sturdy wooden case. It's also huge — out-classing most budget home theatre rigs in sheer size, and standing more than 45cm tall.

While the satellites are reasonably high powered, the set only comes with four, so it's not a full surround system. Given the nature of the subwoofer, however, it's a fair trade-off. The 641 is specifically targeted at gamers, but with a system this powerful it's good for just about everything.

Considering the lack of a central speaker, DVD surround was quite respectable. Most of the time, it was hard to notice that the fifth channel was even missing. Effects were very clear and well defined, and the powerful subwoofer gave a tremendous boost to low-frequency sounds — explosions, thumps and anything bass-intensive sounded spectacular. It was

easier to miss the centre channel in gaming, however, as first-person shooters especially are greatly enhanced by the addition of a fifth satellite.

The 641 can also take a fair amount of punishment from music; in fact, it ate up anything we could dish out. All tracks in our stress test sounded fantastic, with excellent clarity, depth and bass. There was no audible distortion from either the satellites or the subwoofer — although we should mention that the light fittings in our test room started to shake considerably at high volumes.

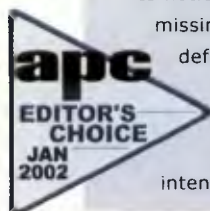
The all-round excellence of this set is hard to surpass. With a superb subwoofer and powerful satellites, it's easy to ignore the missing centre channel and just bathe in their rich, full bass and fine clarity. If you love your sound, the 641 will do you no wrong. ■

Wattage (RMS): 200W total

Cable length: L/R 2.5m; L/R surround 5m



Contact Innovision Technology
Phone (03) 9817 7988
Online www.altecmm.com
Price \$649
Verdict ■■■■



WEBCAM CHALLENGE



ALL FOR ONE AND ONE FOR ALL

EVER WISHED YOUR WEBCAM WAS A REAL DIGITAL CAMERA INSTEAD OF BEING STUCK TO THE TOP OF A PC?

WHAT IF IT ALSO MADE DIGITAL VIDEOS AND SOUND RECORDINGS, OR PLAYED MP3s? THE LATEST ALL-IN-ONE MULTIFUNCTION DEVICES PROMISE THE WORLD, BUT DO THEY REALLY ADD UP? *By Fiona Angus*

At a concert for Australian rock outfit Gerling, a teenage boy carefully strapped his Sony Mavica to his wrist and pushed to the front of the crowd. As the lead guitarist began an impressive series of vertical leaps (à la Angus Young), a girl in the mosh-pit reached into her school bag for a palm-sized Canon digital camera and held it above her head to frame the singer in the LCD screen.

The greatest moments in cinematic, television and music history will never be as loved as home-made fan media. Live television or real-time streaming video just can't beat being there. Part of the thrill comes from taking a piece of the experience home to share. As consumer digital devices have become cheaper and more sophisticated, fan-made digital

photography, video and audio bootlegs have flooded file-swapping networks like Gnutella and Napster.

Professional event organisers do their best to crack down on cameras, yet even a sharp-eyed security guard can't hope to pick out the latest tiny digital devices. Soon, most digital cameras will come with wireless image transfer so you can download files to a PC or the Web. Then there is the ultimate — live video straight from your camera to the Web.

The dream of live video first captured popular imagination when Webcams hit store shelves in the mid-1990s. Webcams promised to make live video chatting a staple in every home, but limited features and bandwidth quickly killed the dream. Now a new breed of Webcam is emerging with a host of digital camera capabilities that promise to set the Webcam free of the PC. These jam-packed all-in-ones try so hard to do everything, there's a danger that they could end up doing nothing very well. APC tested 10 Webcam/digital camera combos across the spectrum, including seven low-cost knock-about models and four fully-featured digital cameras. We discovered some cute and cheap duds, as well as some totally fun and functional trendsetters.

WEBCAM CHALLENGE



CREATIVE WEBCAM GO MINI/D-LINK DSC-100

You won't get very far from your PC with the WebCam Go Mini or the D-Link DSC-100. These quirky, ultra-cheap cameras are the ultimate in novelty technology, but their low-quality (352 x 288) thumbnail photos aren't worth emailing home about.

The WebCam Go Mini will carry just 17 shots in its inbuilt 2MB of memory. Photos look pixelated, although it managed a snappy 30 frames per second at a resolution of 352 x 288 (higher than the 10fps it claims) in Webcam mode. The shape and design are just plain wacky. The lens and viewfinder tilt back from the body, but there's nothing to anchor the body, so it falls off the top of flat screens.

The D-Link DSC-100 is even stranger. At 2cm long, 2.5cm wide and 4.6cm high, it's an example of what happens when miniaturisation goes wrong. Images are small, well-lit indoor settings look like a bizarre black-light disco, and outdoor shots resemble poorly staged UFO sightings. When people discovered they were being videoed with this cute device, their awe turned to contempt when they viewed the 45 seconds of unrecognisable jerky playback. As a Webcam, it lives up to its 30fps with 352 x 288 resolution, but the picture isn't worth looking at. Some things, no matter how cute and cheap, are better left on the showroom shelf.

WebCam Go Mini

Phone (02) 9666 6100
Online australia.creative.com
Price \$169
Rating ■

D-Link DSC-100

Phone (02) 9417 7100
Online www.dlink.com.au
Price \$179
Rating 0

ACER SMART-CAMERA RAVE

At almost the same size as the nightmarish D-Link DSC-100, it's astonishing that the Acer Smart:Camera Rave takes such sharp photos.

The 640 x 480 resolution shots are definitely worth emailing to friends. In fact, even with a 6.16mm CMOS sensor, it beat other cameras with better quality CCD sensors for overall picture quality. In rating the clarity of the Rave's photos, one judge remarked that it created the best representation of the real world, although background colour and brightness tended to be uneven. The clarity held up in videoconferencing

with 320 x 240 resolution at 30fps, but be careful not to position lights in the background. It holds 8MB of still shots in its inbuilt flash memory, although downloading files with the featureless software is like time-warping back to Windows 3.1.

The Smart:Camera Rave was the only mobile Webcam worth packing with a notebook. The stand has a clamp that fits nicely on a notebook screen for Web conferences away from home. It also crosses easily into night-time situations thanks to the flash, and its iBook-like white plastic case is refreshing after so much standard silver plastic.



Phone 1300 366 567
Online www.acer.com.au
Price \$249
Rating ■■■■

KODAK EZ200

Nothing beats snapping a photo and judging the result two seconds later on a digital camera's colour LCD screen. Mobile Webcams only have tiny black-and-white LCD panels (like those in low-end film cameras), which makes them cheaper and smaller, but tedious to use.

As the king of low-end film cameras, Kodak had a head start designing black-and-white LCD panels, so it's not surprising that the EZ200 is a breeze to use.

It is hefty (thanks to the four AAA batteries) and has just 4MB of internal memory, so it only handles half as many photos as the Smart:Camera Rave. The

4.6mm lens takes bright 640 x 480-resolution still photos, as well as 50-second clips of silent video. However, it really needs a flash to make it more useful. For Web conferencing, it only took video at 15fps at 320 x 240 (it claimed 30fps at 352 x 288), so the impressive, smooth live motion it produced was a surprise.

Kodak has pumped the image processing algorithms from the CCD sensor to offer vivid colours. Bumptious and slightly oversaturated Web conferences might not suit every mood, but there's no easier way to share that "Kodak moment". We were inspired by the ability to print out a shiny 4 x 5in photo using Kodak's easy-peasy photo and video software.



Phone 1800 147 701
Online www.kodak.com.au
Price \$229
Rating ■■■

CREATIVE PC-CAM 300

If you can look beyond the peculiar brown snail design and chunky plastic shell, the PC-CAM 300 packs a few surprises.

The quality of the CCD sensor might help explain the good colour and contrast of its 640 x 480 still shots. These look even better if the PC-CAM 300 is connected to a PC where resolution can be boosted to 1,024 x 768. The inbuilt 8MB of memory holds more than 100 shots. Make low-res 75-second movie clips (with sound!), or record sound on its own (up to 34 minutes) with the slightly fuzzy microphone on the back of the camera.

The PC-CAM 300 performs better out and about than it does at a PC. It doesn't fit into

its cradle properly and the base has only a slight tilt. The USB cord wouldn't be so annoying if it plugged into the back of the camera rather than sticking awkwardly out of the side. It still manages a smooth 30fps with 320 x 240 resolution in videoconferences, but like the WebCam Go Mini, the picture looks slightly fuzzy. Creative's fabulous software (modelled on its famous MP3 manager) helped make Web conferences and managing files more fun than using the actual camera.



Phone (02) 9666 6100

Online www.australia.creative.com

Price \$299

Verdict ■■■

SAMSUNG DIGIMAX 35 MP3

The Digimax 35 MP3 is a "three-in-one" digital camera, MP3 player and Webcam. It's a pity it can't do even one of these properly.

It takes washed-out 640 x 480 photos and jerky Web conferences at speeds of just 5fps in 320 x 240 resolution (although it did perform better than this in some tests). Music on the MP3 player is slightly muted, but reasonable enough to make it the Digimax's single best performing function.

It's flexible enough to survive long periods away from the PC, with two AA batteries, a handy flash and a 5.8mm

lens that gets quite close to the subject. The Digimax has the same amount of storage as some \$2,000+ digital cameras. The removable 16MB CompactFlash card holds a tonne of photos and a few MP3s (with so much space, a video function could make it a "four-in-one").

It also comes with headphones, a necklace strap and a psychedelic pouch. At the bottom of the box is a pair of cellophane 3D glasses and 3D photo-making software. If this is meant to appeal to children, the confusing file management software will require parental supervision.



Phone (02) 9955 3888

Online www.samsungcamera.com

Price \$329

Rating ■■

LOGITECH CLICKSMART 510

The Logitech ClickSmart 510 breaks the megapixel mark with its 1.3-megapixel resolution, but it is still efficient enough to make a great no-fuss Webcam.

It produces clear and colourful photos that will easily fill a 15in monitor or make a small print. The removable 8MB SmartMedia card stores plenty of photos and you can make short movie clips with sound or run smooth Web conferences at 30fps with 640 x 480 resolution.

The ClickSmart 510 is so new, it only just made it into APC's holiday roundup of Webcam/digital camera combos. The new curvy silver rubber-grip case and extra pixels beat the old boxy model. However, along

with extra features, Logitech has added more than \$100 to the price tag.

The 1in black-and-white LCD panel has some friendly image management features, including the ability to easily delete unwanted shots on the road. We loved the ClickSmart's glowing green one-touch image transfer button.

It was the only camera to install software and transfer images first try, and has fun extras such as a motion detector for the Webcam and time-lapse recording. Every other camera gave the test system (a Compaq Deskpro running Windows XP Professional) some form of trouble. It's a true hybrid: an efficient Webcam/digital camera combo that does exactly what it promises.



Phone 1800 657 601

Online www.logitech.com.au

Price \$399

Rating ■■■■

WEBCAM CHALLENGE

FUJIFILM FINEPIX A201

For double the price of a mobile Webcam, you can get a dedicated digital camera with Webcam capability. These full-featured digital cameras aren't in the same league as the inexpensive knock-about cameras we've reviewed so far. At this level, you get print-quality resolution and the (sorely missed) colour LCD preview screens. These cameras also take better-quality video clips which sounds great, but remember, videoconferencing is only as good as your bandwidth.

Fuji is certainly banking on a future where photography, video and Webcams all come in the one tiny package; it

manufactures four digital cameras with a special Webcam mode. The FinePix A201 is a basic 2-megapixel plastic digital camera with a slight 2.5x digital zoom.

The 16MB SmartMedia card fits 20 high-quality photos, or you can make a handful of 320 x 240 silent movies. The two AA batteries will only last 80 frames with the low-quality 1.6in (55,000 pixel) LCD screen. Like all the Fujis, it was hard to frame shots on these hazy screens, so it's lucky the optical viewfinders are so good. The FinePix A201 doesn't have a Webcam stand and took a tumble from the PC mid-way through a video conference.



Phone 1800 226 355
Online www.hanimex.com.au
Price \$649
Rating ■■■

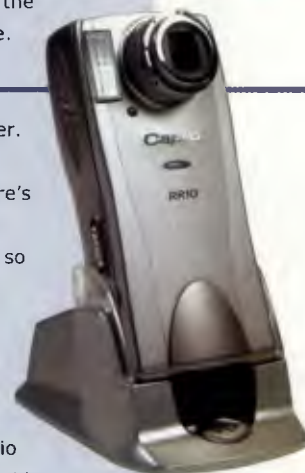
RICOH CAPLIO RR10

In the November 2001 issue of *APC*, the Ricoh Caplio was rated as the "ultimate roving image and communications tool" (page 34).

It lives in a special cradle that doubles as a battery recharger and one-button image transfer device. The cradle has a fixed tilt that aims a 2x optical (with another 2x digital) zoom lens at your head. The 2.1-megapixel resolution picks up confronting detail and lets you take even better shots using the manual exposure and white balance controls. The 1.5in (110,000 pixels) LCD screen frames bright clear shots, so it hardly matters that it's the

only camera without an optical viewfinder. Make up to six minutes of continuous video, or record lengthy audio files. There's four times the storage of any of the Fuji cameras on the 64MB SD memory card, so it's no trouble to download and listen to a few MP3s. However, be prepared for long waits between shots as the Caplio was slow to process files.

At under \$1,000 (down from \$1,299 when it first came out), the Caplio is a true all-in-one. It balances camera, video, Webcam, audio and MP3 player features, it's just a pity the software couldn't make the most of everything the Caplio could do.



Phone 1300 363 741
Online www.ricoh.com.au
Price \$999
Rating ■■■■

IMAGE QUALITY

APC asked a panel of three judges (including two graphic artists) to rate the image quality of each camera. The FinePix A201, 50i, 6800 and the Ricoh Caplio are full-featured 2+ megapixel digital cameras that could not be compared with their

cheaper Webcam cousins. All except the FinePix A201 (which produced extremely dark photos) have excellent image quality. The Logitech ClickSmart 510, the Acer Smart:Camera Rave, the Kodak EZ200 and the Creative PC-CAM 300 were the only cameras that came up to scratch.

PRODUCT	COLOUR	CLARITY	CONTRAST	OVERALL PICTURE QUALITY SCORE
Logitech ClickSmart 510	■■■■	■	■■■■	■■■
Acer Smart:Camera Rave	■■■	■■■■	■■■	■■■
Kodak EZ200	■■■■	■■■	■■	■■■
Creative PC-CAM 300	■■■	■	■■■	■■■
Creative WebCam Go Mini	■■■	■	■■■	■■
Samsung Digimax 35 MP3	■	■■	■■	■
D-Link DCS-100	■	■	■	■

FUJIFILM FINEPIX50i

The novel design and stylish cradle of the FinePix50i drew some "oohs" and "aahs" on the street, yet its preoccupation with style comes at the expense of usability.

The large spring-loaded lens cover snaps back to reveal a 2.4-megapixel camera. The 1.5in (110,000-pixel) LCD screen shows a jerky 3.75 digital zoom, controlled with a set of small, well-placed buttons. The FinePix50i is the size of your palm and extremely light, yet the square shape is awkward for larger hands. It feels almost like an aluminium-magnesium zip disk. The Fuji camera can be configured to act just like a removable storage disk such as a FireWire drive or

IBM Memory Key. Keep backups of favourite images or just use it to shift files around. It's also an MP3 player and, unlike the Caplio, comes with excellent headphones and a glowing remote control. Yet with only 16MB to store photos, as well as your audio recordings and short 80-second videoclips, there's not much chance to use this.

The half-moon cradle can't tilt back in a videoconference and the FinePix50i almost took a plunge in an effort to get it at head level. The FinePix50i and A202 were unplugged after long videoconferences because they got way too hot for comfort.



Phone 1800 226 355
Online www.hanimex.com.au
Price \$1,499
Rating ■■■

FUJIFILM FINEPIX6800 ZOOM

Porsche had a hand in the design of the FinePix6800 Zoom, and it shows. At over \$2,000, you may never own this eye-watering camera, but it's fun to dream on.

This is a 3.3-megapixel camera which takes such high-res images, you can only fit six on the limited 16MB SmartMedia card. With a 3x optical zoom lens and advanced manual control settings, you can try your hand at some more sophisticated digital photography. You can even use zoom when filming 160-second videoclips, then preview movies straight after shooting on the 2in (130,000 pixel) LCD screen. Both the FinePix50i and 6800 are fast operators, taking

only a heartbeat to process a shot. Unlike other cameras, movies shot with the FinePix6800 have decent audio simply because the microphone is on the front.

The list of fabulous features goes on. The FinePix6800 rests in an adjustable cradle that tilts towards your face for making reasonably smooth video with excellent picture quality. It's just the right size to move in different social circles: not too small, not too big, and easy to hold. We've found our perfect digital companion.



Phone 1800 226 355
Online www.hanimex.com.au
Price \$2,199
Rating ■■■■

THE PERFECT CHOICE

All-in-ones appeal to our greedy side and seduce us with their amazing list of features. We think: "Instead of buying a \$1,500 digital camera, a \$2,500 digital video recorder, a \$600 MP3 player and a \$100 Webcam, here is everything at a fraction of the price!" After all, with so many features in the one package, how can you go wrong?

The trick to buying an all-in-one is to look for complementary technologies. Choose the wrong combination and you could end up with an all-in-none.

Webcams and digital photography are the perfect match. The Fujifilm FinePix50i

and the Samsung Digimax 35 MP3 try to combine MP3 players and digital cameras, but don't manage to mix the technologies very well. In the end, the extra features come at the expense of the core technology. Sure the Ricoh Caplio does pull it off, but are you really going to use an MP3 player in a situation that calls for a digital camera?

After all, the technology has to match the social setting you're venturing into. A good multi-function device will bridge the divide between different situations. We love the Fujifilm Finepix 6800 and Logitech Clicksmart 510 because they bridge the digital divide between your PC and the rest of the world. ■

FEEDBACK LOOP

LOVE IT OR HATE IT, EVERYONE
HAS SOMETHING TO SAY ABOUT
WINDOWS XP.



It's two months since XP hit the streets and APC readers have been quick to both praise and condemn Microsoft's bold new operating system. But the verdict is far from decided. It's time for APC's early adopters to step up and let everyone know how XP performs in the real world. Send your eXPerience to epinions@apcmag.com. Here's what you have to say so far.

A NEW LIFE

I thought there was no way my (P200mmx, 128MB, 10GB) computer would ever be able to handle Windows XP. But after reading your XP feature (APC November, page 52), I took your advice into account and found that it runs smoothly. For general home/office duties and surfing the Net, XP is great. I make graphics-intensive Web pages, and never once has my computer let me down. I've upgraded from Windows Me, and find myself very much at home.

Craig Howden
Reservoir, Vic

PAY OUT OR PAY-OFF?

Your effusive editorial boost to Windows XP is a bit hard to swallow. Without going into how most of the benefits that XP purportedly brings (multiuser logins, remote display of apps, stability) have been available in Linux for the past decade, I'd like to focus on just one aspect of your piece. You say that staff at APC have been running Windows XP for some months. My questions to you are: how many workstations are currently running XP, and how many of these have you paid for? Most people pay through the nose for closed source proprietary software. Many of us are wary of purchasing yet another Windows upgrade — especially one that has the greatest number of restrictions, privacy intrusions and monopolistic leveraging functions built into its core of any OS product ever released.

Con Zymaris
Melbourne, Vic

We have Windows XP Professional running on eight workstations in our office and one testing machine in APC Labs. And no, we didn't pay for any of them. Microsoft sent us full Professional, Home and beta editions of XP so we could tell you all about it.

XP? NOT FOR ME

The more popular Windows becomes, the more Microsoft seems to try and bully us into accepting more onerous terms for using it. This is evident in the Product Activation (WPA) requirement (APC November, page 92) for Windows XP. Microsoft's insistence on taking a snapshot of my system so it can eavesdrop on my use of its software is going too far. As a student with a limited budget, I regularly buy a second-hand computer with no software installed and use my own copy

I am concerned by the secrecy with which Microsoft surrounds Windows. The OS is so important that its source code must not remain hidden. If the OS runs well, the software has a better chance of also running well. I have no problem with application software firms retaining source codes, but the OS must be open source so that everyone knows what is happening inside their machines. I do not like the fact that Microsoft packages have a habit of "running home" to Microsoft's Web site. It's only because I run ZoneAlarm that I have stopped this from occurring but I wonder how many inexperienced users are reporting back to Microsoft without their knowledge. We have a right to know what's happening in our own PCs. The requirement of open source coding for OSes needs to be taken up with the Australian Consumer Affairs Commission. Many small firms are rejecting Windows XP and moving to Linux. Hopefully this will continue and Microsoft will have to put its OS in the public arena for proper scrutiny.

Dr Tony Young
Blackbutt, Qld

LIKE TONY, WE ALSO WONDER what the operating systems of the future will look like. Until then, we hope Tony can handle his winning copy of Microsoft Office XP, with the latest 2002 versions of Word, Excel, Outlook, PowerPoint and Access, so he can try it out for himself.



COMPUCON WINNER:

of Windows 98. After about 12 months, I sell this computer with the hard drive wiped clean. My copy of Windows is never installed on more than one computer at a time. Your article last month made it clear to me that I will not be able to continue to do this with Windows XP. I was really looking forward to purchasing the full version of XP; however, it seems now that this will be impossible with my current purchase and sale pattern. Windows 98 forever for me. Boo-hoo!

Matt Kahler
Indooroopilly, Qld

IT DOESN'T WORK

Why won't Windows XP run basic things on my computer? As your article points out (*APC* November, page 52), using a digital camera should be easy on XP. But my copy won't run my digital camera (a professional Kodak model). I should be able to use my fax, CD burner, scanner, photo program, modem, mouse and all the other goodies Bill would love us to have. But there's no guarantee. I will have to reload or rebuy. Bill tells me even Netscape 6.2 may not run. That's a downer, since his Internet Explorer 6 is rubbish in comparison. As a publisher of software and magazine stories, I can see XP will be no good for me. I have to wonder why so much time was spent developing a product that most small businesses will find useless, unless they're prepared to upgrade the rest of their hardware and software at the same time. Now I'm wondering where all the other OSes for the PC that will run like Windows are. Where's the competition?

Gill Davis
Samford, Qld

FOOLPROOF SOFTWARE

In response to Chris McMahon's letter "Singing the Beta Blues" (*APC* October, page 78), I'm getting a bit tired of people jumping on the "let's bash Microsoft" bandwagon when it's clear that their bad experience is their own fault. The release of Windows XP (and especially the opportunity for Australians to participate in the beta testing) is a wonderful thing, and Microsoft went to great lengths to explain compatibility

We welcome comments and suggestions. Send correspondence to:

APC Readers' Say, PO Box 4088, Sydney NSW 1028, or email apc@apcmag.com.

Letters can also be submitted online at apcmag.com. All correspondence becomes the property of *APC* and is subject to editing.

HOW TO CONTACT US

issues to its testers. No one, not even the mighty Microsoft, can make software totally "foolproof". I had a wonderful experience when I installed Windows XP beta. And now, the real XP is the way to go!

Phillip Stephenson
Maroubra, NSW

GOODBYE MAC, HELLO WINDOWS

After eagerly reading about Microsoft's Windows XP and Office XP in *APC*, I finally purchased the Professional versions of both these products. The verdict? Microsoft is to be commended for a job well done. XP is absolutely incredible — the advanced security, new interface, unprecedented software-hardware compatibility and general product features for every need will ensure that Microsoft stays well in front of the rest. Having been passionately in love with Macs for so long, I can now say that Microsoft has converted me.

James Goris
Canterbury, Vic

SEEING IS BELIEVING

As a long-running Windows fan with a vision impairment, I'm a little disappointed with XP. I've just installed Windows XP Plus Edition for Windows XP Professional, but there are so many parts that just can't be read, or adjusted to make it easier to read. It does score points for including more accessibility options for people like me; however, I really would like to see one more release that is adjustable so there are no parts that can't be read. For example, it's no good to me if the copyright details are black text on a white background —

THE LUCKY WINNER OF OUR November subscriptions promotion is I Winter of Clifton Springs, Vic. I Winter has won a Compucon Atlantis R1700 Personal Computer, including Windows XP, Office XP and Visio 2002, Office keyboard, IntelliMouse Explorer, and two games: Age of Empires Gold Edition and Sidewinder Strategic Commander. This package is valued at over \$5,600.



it needs to be white text on a black background or I can't read it!

Charlie Spooner
Melbourne, Vic

WHAT A RIP-OFF!

When I upgraded from Windows NT to Windows 2000 Professional, it was cheaper than upgrading from Windows 9x. However, with XP I have to pay the same as a 9x upgrade. Seems like Microsoft is ripping 2000 users off. I'm sticking with 2000. It's stable and doesn't have Product Activation.

Mark Muller
Renmark, SA

SUBSCRIPTION PRIZE

CRIME & PUNISHMENT

YOUR BROADBAND PROVIDER MAY HAVE AN UNPLEASANT SURPRISE FOR YOU.

Chris Mauerhan of Brisbane woke up one morning to discover his Optus@Home broadband service disconnected. At first he thought his modem was broken, but when he called Optus@Home, they said he was now banned from their network.

It turned out Chris had breached his download limit. He was stunned. "I had just moved over from Telstra after they brought in a 3GB cap. I had never come close to being an over-user on Telstra so I didn't bother checking how much I was downloading on Optus@Home — especially when they're sending out emails about how you could get four times as many downloads as Telstra."

The download limit on Optus@Home is calculated by the average amount of bandwidth used by all subscribers over a rolling 14-day period. If you download 10 times the average, you get cut off. Under this system, your download limit may rise or fall unexpectedly depending on how heavily others are using the network.

Chris acknowledged he had been downloading more than usual and was prepared to cop the penalty. He asked how much he had downloaded in order to be cut off, but staff refused to tell him. "If I overuse and they're penalising me, I want proof," he said. However, he decided to pay the \$80 fee and wait out his two-week ban.

But Optus@Home wasn't ready to connect Chris just yet. First he had to submit to a "review process" conducted by a team leader. Chris had to answer a series of questions and agree to a set of conditions, including he would never reveal what had taken place in the review. "They said it was an agreement between me and

Excite@Home." He reluctantly agreed.

The team leader then tried to make him agree not to discuss the review in any way with the media. Chris declined. "It was bullying tactics," he said. "They can't take away my right to question." Chris contacted Watchdog to warn others about Optus@Home's heavy-handed tactics.

Watchdog asked Optus@Home why Chris wasn't warned before he was cut off, why no-one would tell him how much he had downloaded, why the review is so secret and what penalties Chris risks if he reveals what happened in the review?

An Optus@Home spokesperson indicated they wished to respond to Chris's case, but three weeks went by with no reply. Newspaper headlines revealed that the US company that owned 50% of Optus@Home had collapsed. As the other part-owner, Optus bought the entire operation and merged it into its other operations. More than half the employees were immediately retrenched, including the person looking into Chris's case. Watchdog contacted Optus directly. Here's what a spokesperson had to say:

When a consumer signs up for the Optus@Home service they agree to use the service within the Acceptable User Policy. The policy explains that



a customer's service will be cancelled if they exceed 10 times the average customer usage during the 14-day "usage period". When a customer reaches eight times the average customer usage a warning email is sent stating that they are close to the limit, and then prior to disconnection every effort is made to contact the customer. To ensure customers know how much they are downloading Optus provides a monitoring tool called "My NetStats". Optus is under no obligation to reconnect a customer who breaches this policy. However, in this case we believed that Mr Mauerhan was genuinely unaware that he had breached the Acceptable User Policy so as a gesture of goodwill offered to reconnect him to the service.

Of course, Optus is free to set the conditions on the Excite@Home service and users agree to these terms when they sign up. However, Watchdog is disappointed Optus isn't prepared to be more open about its download restrictions and the review process. Chris could face damages under common law if he discloses what happened in the secret interview. He's decided he can live without this type of "goodwill".

"Once my contract is over I intend to cancel all Optus services including my home phone, cable TV, mobile phone and Internet connection." Telstra has just finalised a new pricing regime for its cable service, charging a flat 17.5 cents for each excess megabyte. Chris plans to sign up next month.

Fiona Angus

CONTACT US

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ACP Tech



APC uses *its crystal ball* to gaze inside The Lord of the Rings





TECH WIZARDRY

BY WILLIAM MAHER

THE EPIC BLOCKBUSTER *THE LORD OF THE RINGS* HAS FINALLY HIT AUSTRALIAN CINEMAS. COME BEHIND THE SCENES AND SEE HOW FX WIZARDS BUILT A DIGITAL UNIVERSE COMPLETE WITH DWARVES, GIANT CAVE TROLLS AND HORDES OF DIRTY, BLOODTHIRSTY ORCS.

THE DOOR EXPLODES AND A MASSIVE FIGURE BURSTS

into the room. It's huge, maybe 3m high, with thick, leathery skin and long claws. The mouth curls back around sharp teeth in a snarl. A huge metal hammer hangs limply in its hand.

At its feet, down in the dirt and the dust, a tiny figure stands paralysed with fear. "Please don't eat me!" you expect him to scream, but he doesn't. The figure stands, and then lunges forward between the monster's legs. The hideous monster recoils and heaves the hammer high, then a split second later the steel falls with a sickening crash, but it's too late. The cave troll has missed its mark.

Welcome to *The Lord of the Rings*, blockbuster-style. Sophisticated computer wizardry has brought Tolkien's epic three-part novel, published in 1954, to life on the big screen. It's a living, breathing universe, complete with giant cave trolls, dwarves, talking trees, magic rings and hordes of dirty, bloodthirsty orcs.

It was a long and painstaking process. Instead of old-fashioned light boxes, special effects artists now wrestle with a mind-boggling array of software and hardware. With the click of a mouse, movie-makers can now send legions of warriors into battle, or create "virtual" actors with hair so real you could almost reach out and touch it. Forget *Jurassic Park*, the next generation of special FX will look more real and more terrifying than ever before. It's a tricky job, but as they say in Hollywood, "it's gonna blow you away".

From the outset, it was obvious to director Peter Jackson that special effects would be crucial in the making of *The Lord of the Rings*. Human actors would have to be shrunk to play the starring characters, the child-size "hobbits". Epic battles featuring up to 100,000 bloodthirsty orcs would have to be created. And what about the cave trolls, evil demons and talking trees? Says Jackson, "I applied the same philosophy to digital effects as to the overall design. I wanted the monsters to feel real, right down to the dirt under the fingernails of a cave troll or the bloodshot, bulging eyes of Gollum."

Creating a walking, snarling digital cave troll is an arduous process. Think of a stage production, with experts controlling the lighting, costumes and make-up, except that here everything is done with a mouse. The "wizards", in this case, are the people at Weta Digital: a 220-strong team of computer animators, modellers, rotoscopers, painters and motion capture experts based in New Zealand. In charge of the technology at Weta is Jon Labrie, sometimes known as the head geek.

Labrie is excited as he explains the work behind the cave troll scene. "It was extraordinarily difficult to do, because all the camera movements are handheld. I mean, the camera's goin' crazy, it's running around and there's no locked-off shot in the entire sequence. You have very difficult tracking, you have very frenetic craziness going on, and we have to drop a substantial CG



[computer graphic — the cave troll] feature into the centre of it all and have it be believable. The fact that we were actually able to do it is pretty cool."

To create the scene, work begins in the "creature shop", where computer artists take a basic skeleton and cover it onscreen with muscle, bones, clothing and armour. For the movement, an actor is wired in a studio with sensors on arms and legs, and movements like walking and fighting are recorded on computer. The computer then applies the same movements to a computer model — and voila, a walking, snarling, smelly cave troll.

But that's only half the job. The "virtual" cave troll must somehow be combined with footage of human actors and made to look believable. You think that's easy? A complex shot might have many "plates" or layers of information — the background footage of the room, footage of actors, a foreground plate, a miniature plate showing model buildings, a CG element, or maybe three CG elements. Everything must be combined seamlessly. When this delicate process is completed, and all the layers have been added, the result is a single frame of film. Twenty-three more of these are required to create one second of the movie.

The most complex shots in *The Lord of the Rings* are as long as 1,400 frames and have as many as 27 elements. Each frame is about 12MB, so this is not the sort of job you tackle by bunging a few extra hard drives into a PC. This requires the big guns. "I'll tell you, some days it's pretty crazy. The infrastructure is extraordinarily complex," Labrie explains.

He's not kidding. The Weta Digital facility in New Zealand is jam-packed with serious computer equipment, and it's all for *The Lord of the Rings*. If you're looking for the ultimate spot to host

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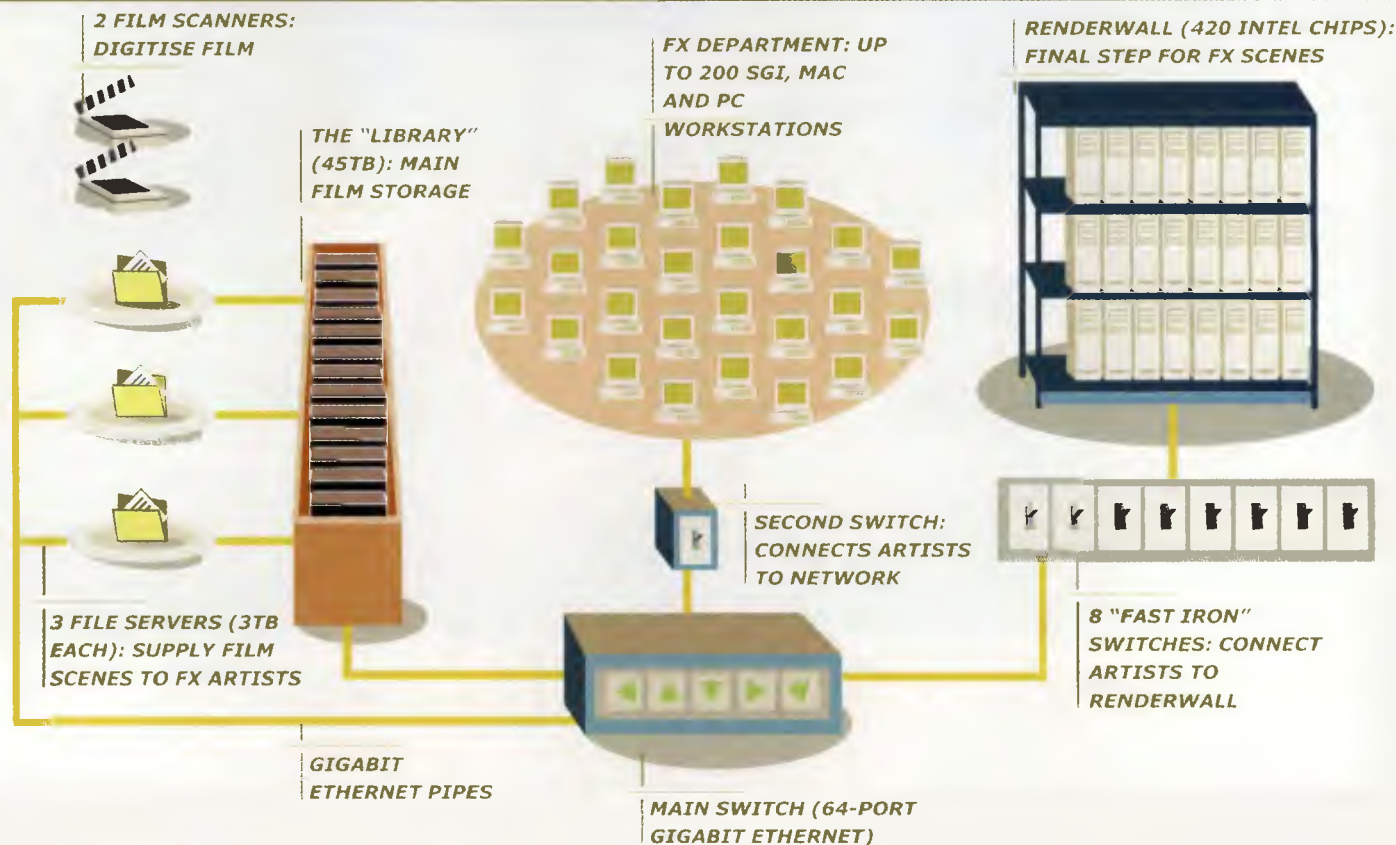
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THE WIZARDS' WORKSHOP

a network gaming party, this is it. Everywhere you look there are powerful computers designed especially for graphics and video work, ludicrous amounts of storage, and networks so fast they'd make any IT worker weep with joy.

Weta even claims a first: a massive digital "library" that will store nearly every single shot from the making of the movie trilogy. Scanning the film into the library means every element can be manipulated by Weta's effects team, from landscapes to mood lighting to hobbits on horses. A tape robot handles more than 2,000 tapes, which boast a whopping 45TB of space. Labrie estimates the tapes are about 70% full, "and we've only done film 1", he adds smugly.

Weta Digital's centrepiece, spoken of with awe, is the renderwall. Imagine six large network racks stacked floor to ceiling with 210 computers — a giant computer wall. Inside each

computer are two 1GHz Intel-based processors. That's a total of 420 chips, humming expectantly like an eager dog waiting for instructions from its master.

The renderwall's job is to wrap together finished film sequences. Once effects are pieced together with raw footage, the frames are sent to the renderwall for "rendering". The job requires serious grunt and usually takes a long time. At some effects houses, artists play impromptu games of indoor soccer while they're waiting. Labrie reckons his renderwall can complete a job in less than 20 minutes — that's exceptionally quick.

You can tell by Labrie's voice that he is extremely proud of Weta's digital effects facility, or "my baby", as he calls it. Only six or seven years ago, the facility was home to just 10 artists. Now the buildings sometimes hold 220 staff during peak production times, including 160 computer artists. And don't forget, these people are only responsible for the digital effects in *The Lord of the Rings*.

Still, Weta is only a baby compared to some other well-known feature-film effects houses. The most famous is George Lucas' Industrial Light and Magic, which created the space battles for *Star Wars* more than 20 years ago. There's also Manex, which did the "bullet time" sequence for *The Matrix*, and the team at Pixar, which was responsible for animating the *Toy Story* films and *A Bug's Life*.

These people are now waiting with bated breath to see the results of the first "Rings" films, entitled *The Fellowship of the Ring*. Much of the hype seems to be about the huge battle

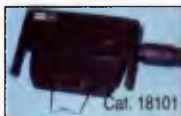
FX CAREERS

Want a career in digital FX? Each year, the NSW Film and Television Office offers traineeships with digital FX companies in Sydney. You get to learn skills such as 3D modelling, animation, compositing and FX design, and you might even get to work on cool projects like *The Matrix*, *Farscape* or *Moulin Rouge*. The closing date for the next round of applications is 1 April, 2002 (no, this isn't an April Fool's joke). Phone (02) 9264 6400 or visit www.fto.nsw.gov.au to find out more.

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WETA'S EFFECTS TEAM CAN MANIPULATE ALMOST EVERY ELEMENT OF FILM, FROM LANDSCAPES TO HOBBITS ON HORSES.

sequences, glimpsed briefly in trailers and greeted with "ooohs" and "aaahs". They show battlefields seething with black orc warriors. Not hundreds, but thousands, all marching like a giant colony of ants. So how did Weta do it?

The answer is a piece of software called Massive, developed in the mid-1990s when Peter Jackson was considering a remake of *King Kong* and wanted a way of creating huge crowds. Like many other effects houses, Weta decided to create its own custom effects tool: an instant crowd-builder. The *King Kong* project was later scrapped, but Jackson told his software team to keep working. By then he had another project on his mind — *The Lord of the Rings*.

Massive's job on *The Lord of the Rings* is to animate battle scenes with thousands, sometimes hundreds of thousands of fighters. The amazing thing is that the creatures on the screen have a "brain" — they're not dumb models, like most animations.

Each figure is like a computer game character with instructions about where to run and who to attack. Animators get to click the mouse and watch the action unfold.

Labrie explains: "Essentially, there's a brain-building tool that allows you to define an agent or creature. Let's say that might be a Uruk-Hai, a type of fighting orc. We go into motion capture stage and we've designed a kind of motion for the Uruk-Hai. Let's say that it's kind of a middle-European half-hand, hack-and-slash technique. We'll capture a lot of motions — attack high, attack low, block high, block low, walk, run, die."

Weta records as many as 200 separate motions for each of the individual types of creatures. The movements are all put together in a "motion tree" and made accessible to the creature's brain. Once the motion-capture work is done and each Uruk-Hai is given its instructions, the battle begins.

THE MAGIC TOOLBOX

The FX software used for *The Lord of the Rings*:

ALIAS|WAVEFRONT: MAYA

- 3D animation tool
- 63 licences
- You name it, Maya's probably involved. Used in films such as *Final Fantasy: The Spirits Within*, *Star Wars: Episode I — The Phantom Menace*, *The Mummy* and *Wild, Wild West*.

NOTHING REAL: SHAKE

- Compositing tool
- 45 GUI licences, 140 render licences
- Widely used, including in films such as *Harry Potter and the Philosopher's Stone*, *The Matrix*, *Pearl Harbor*, *Titanic* and *Gladiator*.

SIDE EFFECTS SOFTWARE: HOUDINI

- 3D animation software
- 10 licences

- Used to create films such as *The Mummy Returns*, *The Grinch*, *X-Men*, *Hollow Man*, *Fantasia 2000* and *The Matrix*.

PIXAR: RENDERMAN

- Rendering software
- 232 "render threads"
- Created by Pixar Studios. Used to produce *The Matrix*, *What Dreams May Come*, *Titanic*, *Forrest Gump*, *Jurassic Park*, *Death Becomes Her*, *Terminator 2* and *The Abyss*.

DISCREET: INFERNO

- Visual FX suite
- One Discreet Inferno SGI workstation (worth more than NZ\$1.5 million or approximately AUD\$1.2 million.)
- Used in the making of *Gladiator*, *Hollow Man*, *The Perfect Storm*, *Titanic*, *Independence Day*, *Star Wars: Episode I — The Phantom Menace*, *The Matrix* and *Stuart Little*.

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"We throw 5,000 or 10,000 or 50,000 of them into a scene. They have sight and they have hearing, so they can actually communicate with each other and respond to the environment around them. They can identify enemies by the colours that they wear, engage them in battle, and die. They have the concept of hit points, they have the concept of age. They have secondary dynamics in the system, so that when they are running around their clothes are flapping, and you get a jiggling motion in their hair that you need for realism. They'll get dirtier as they fight, depending on the types of terrain they're covering.

"We have tools to put in variation, so that when you put 5,000 Uruk-Hai into the sequence, they won't all look the same. Some will be taller, some will be short, some will have a longer stride length, some will carry their swords on their shoulder, some will carry them low, and that all happens automatically now."

So what do the results look like? "It's looking pretty good and I'll tell you, film two and film three are like [Labrie pauses, not wanting

to reveal too much] . . . there are *huge* battle sequences in those films. Massive is gonna get a serious workout on those films."

A select few of the computer-generated characters require the royal treatment — personal sculpting and animation by Weta's finest effects artists. These are the few digital characters that play crucial parts alongside the human actors. They include Gollum, a ghoulish hobbit-sized creature twisted by evil and years spent living deep underground. Animators have tried to give Gollum realistic bone and muscle, all seen rippling under his translucent skin.

"I think that Gollum may be one of the most sophisticated digital creations seen yet. Throw out all your old ideas about what CG looks like, because Gollum defies them," says Richard Taylor, in charge of Weta's separate "Workshop" division, which provides thousands of puppets, costumes and miniature models.

An even bigger challenge is Treebeard, a walking, talking, tree-like figure that must act alongside the film's human stars. Labrie says Treebeard has been the hardest CG creature for Weta to



LEFT: FEARSOME-LOOKING ORCS CHARGE INTO BATTLE. WATCH OUT, FRODO!

TOP RIGHT: THE BLACK ARMY MARCHES. THIS SCENE WAS CREATED USING THE CROWD-BUILDING SOFTWARE MASSIVE.

BOTTOM RIGHT: A URAK-HAI ATTACKS. EACH URAK-HAI IS DIFFERENT, BUT THEY ALL HAVE ONE THING IN COMMON — YOU DON'T WANNA GET IN THEIR WAY.

TOOLS OF THE TRADE

A high-definition digital camera, like this new HDW-F900 unit from Sony, is a must-have tool for tech-minded film-makers. There's no need to reload rolls of 35mm film, and footage can be played back immediately on set. Also, editors can blow up HD film further without degrading the image. It's also more convenient for adding digital FX. George Lucas is the most famous proponent of digital — he's shooting the latest *Star Wars* film entirely with this Sony camera. "I think that I can safely say that I will probably never shoot another film on film," he said.

Others are still wary — working with digital has both advantages and disadvantages. The word is that Peter Jackson has also taken a look at the Sony camera, but there's no news of anything being shot on digital just yet.





NOT VERY FRIENDLY, HEY? DESPITE THE TREND TOWARDS DIGITAL EFFECTS, LOTS OF TERRIFYING CREATURES IN THE LORD OF THE RINGS WERE THE RESULT OF GOOD OLD MAKE-UP AND MASKS.

create so far, no doubt due to the fact that he is covered in leaves. Smooth skin is always much easier for FX wizards to create. Hair and fur are much trickier.

Again, the answer is special software. The effects world now has software designed specifically for intricate tasks like creating hair, fire and smoke. Guy Griffiths, research director for Australian effects company Animal Logic, says if you look closely at the movies of the last five or six years, you can see the progression in the software.

"If you look at *Jurassic Park*, there's some great muscle movement in there, but they're hard body surfaces, not furry things. If you look at *Monsters* [a new animated film by Pixar Studios], it's gone from Woody and those guys in *Toy Story*, which are hard, to furry surfaces. There is a noticeable progression from somewhat easier or achievable effects to more difficult ones like fur."

This trend means effects artists at Weta now have a smorgasbord of tools to choose from. Want a CG actor with flowing, shoulder-length hair? No problem, just grab your hair tool. You can even buy software called "Shave and a Haircut", made specifically for creating virtual hairdos. There are also tools for creating clouds, or to simulate water splashing.

Griffiths explains how hair software works: "It's a plug-in. You would probably place down what we call 'guide hairs' — not every single hair, just rough hairs spaced across a surface. Then bend those and shape those and animate them. You have controls for how dense the hair is across a surface, the basic parameters of the hair like how curly it is, what its root colour is, what its tip colour is, that type of thing. So there is quite a lot of work in actually just styling hair."

The ultimate test, though, is the audience — will any of this trickery look real? Not everything goes according to plan and Griffiths says that some FX look silly because artists run out of time.

"I'll tell you one I wince at a bit — that's the end of the film *Air Force One*, where the plane crashes. At the finale of the film, *Air Force One* crashes into the ocean and it does a cartwheel. The motion is completely wrong — it hits the water and doesn't crumple straight away, it does a cartwheel. Hang on a minute, planes wouldn't behave like that if they hit the water at 900 miles an hour," Griffiths says.

"You look at a shot and you go, 'Oh, that's terrible', but usually there's a story behind it. No-one wants to make terrible work. So usually it's either an issue of money — they didn't have enough money to finish it off — or the material they had to work with was bad in the first place. Or they just ran out of time."

Sticking to the deadline is a constant battle, not made any easier when movie-makers constantly push the limits of effects skills. Effects artists might work for months on a particular shot, only to have someone else come along and say, "Do that again, but I want it twice as exciting." It's also hard because a single frame of film can involve a multitude of software and hardware tools. It's not just a

case of whipping out the hair software, or the smoke plug-in — many shots require hours and hours of tweaking.

"It's an art form. What they're trying to express is always changing. We'll never get to the situation where I come into work in the morning and press the button on my software that says, 'do my job for me'. It's a creative endeavour," Griffiths says.

Despite the intricacies of the job, late hours spent bleary-eyed in front of computer screens can have magical results. For the Weta team, the biggest buzz will come from seeing the finished film up on the big screen. All the hard work behind the scenes — the rotoscoping, the motion capture, the rendering, the modelling and the animation — becomes worthwhile the precise moment that fat, ugly cave troll comes crashing through the wall swinging its hammer.

The first instalment of The Lord of the Rings (The Fellowship of the Ring) opens in Australian cinemas on 26 December 2001. ■



GUY GRIFFITHS

HOW'D THEY DO THAT?



A JEDI'S WEAPON

One of the most famous special effects is the *Star Wars* lightsaber. For the original film, made 24 years ago, artists had to painstakingly hand-trace the lightsaber on to each frame of the fight scene. Today, the technique is similar, but it's all done with computers. Animators draw in the blade, tell the computer where the arm will move, and the computer fills in the rest. Sites have even sprung up on the Net showing fans how to do the same thing on their home videos using a home PC and simple editing software. Visit freeweb.pdq.net/smokin/rotoSCOPE to find out how.



BAD HAIR DAY

For *Final Fantasy: The Spirits Within*, animators had their work cut out creating an entire cast of digital characters, complete with haircuts, beards, sideburns and goatees. The big task was creating a convincing hairdo for the film's virtual star, Doctor Aki Ross. Animators had to figure out how to make Aki's hair move differently when she was floating in zero gravity, from when her hair bunched around her head as she lay down on a table. Using the 3D animation software Maya, animators put in place "rules" to specify how Aki's hair could move in each situation. Check out our Maya demo on CD 1 of this month's CD set, or visit www.aliaswavefront.com.



BULLET TIME

Ask a special effects fanatic to name their favourite movie and chances are they'll pick *The Matrix* and the movie's slow-motion bullet time effect. The super-cool



gimmick is achieved by filming at incredibly high frame rates — as high as 12,000 frames per second. It means the director can speed up or slow down the action, but it won't look like slow motion because the actor's movements will still be super-smooth. For example, a fighter can leap for a kick, appear to hover in the air, cut loose with some lightning-fast moves, then land as gracefully as a feather. Visit www.whatisthematrix.com to find out more.

THE INVISIBLE MAN

How hard can it be to create an invisible man, right? Harder than you'd think. For *Hollow Man*, effects wizards had some peculiar challenges. For instance, how do you show the veins and organs of a transforming invisible man? What about water splashing onto an invisible man's face? How do you put clothes on an invisible man, or make bedsheets crumple under the invisible man's body? The *Hollow Man* team used custom-made software for many of the tricks, including a tool especially created to sag the bed under the invisible body.

COW TROUBLE

Sometimes the best digital effects are the ones you don't notice. For the old-time adventure film *O Brother, Where Art Thou?*, digital artists were hired to draw in a cow that is killed at high speed by a car. The result was so believable that animal rights activists asked for proof that a real cow wasn't killed. Digital effects were also used in other scenes, such as a flood scene where an assortment of odd objects, including a dog, float past the underwater camera. The final film was also colour processed to give each scene an old-time yellowed look.

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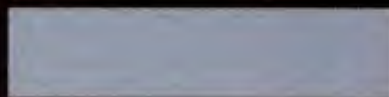
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PROFILE

STEPHANIE CARULLO



Late last year, local IT recruiter Icon abandoned print media completely for job advertising — it now uses Internet job sites exclusively. According to CEO Brian Youston, Icon “gets a better quality of job applicant and it’s more cost-effective”.

During the third quarter of 2001, 12 times as many IT jobs were advertised online as in print. Is online recruiting a substitute for *The Australian* or *The Sydney Morning Herald*? Yes in part, but the best job boards offer much more.

Two local job sites are actually part of major newspaper groups.

CareerOne.com.au is run by News Limited, publisher of *The Australian*, and **MyCareer.com.au** is run by Fairfax, and linked strongly to *The Sydney Morning Herald* and *The Age*. All print ads are listed online for free.

So what are the advantages of online job listings? Libby Christie, Monster.com’s managing director, recalls the story of a small New Zealand company looking for specialist high-tech employees. After six fruitless months of conventional advertising, it tried online recruiting and filled both positions with applicants from Germany. As a company representative explained to Christie, “We thought New Zealand salaries would be too low to attract overseas applicants, so we didn’t look outside NZ.”

ONLINE RÉSUMÉS

Storing your résumé online is a great idea. You can store your résumé online inactively, which means no-one can look at it unless you give them a special access code. This is useful if you want to maintain an online résumé to which potential employers can be referred.

Some sites allow prospective employers to search through résumés, looking for the right person for a job. This résumé search function is very new. Your résumé is held online with varying degrees of accessibility. For example, some people are happy to allow anyone access to their full details so that they can be contacted

STEPHANIE CARULLO JOINED IBM IN 1990 AS A graduate trainee. Eight years later she became the youngest ever director of IBM in Australia and New Zealand, managing the company’s commercial business division. Carullo’s previous IBM jobs included state manager for Victoria and general manager for IBM channels.

“My success is largely because I focus on the business results that my clients are trying to achieve. They want to work with people who have strong business acumen, a sense of urgency, and a creative approach to solving problems,” she says.

Carullo studied economic history at Monash University. “The honours degree was useful because it instilled commitment

and discipline, and taught me about deadlines, methodologies, developing business cases and presenting a position with supporting documentation.

“Learning is about applying what you learn to the environment in which you live and work — my liberal arts education was the springboard to a world of opportunities.”

Carullo, 33, now leads a team that works with commercial clients to understand their business challenges. They then work together with IBM’s business partners to develop solutions.

Her clients are drawn from a broad range of industries, and vary from small businesses to large corporate clients with hundreds of employees. Carullo aims to

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directly. However, you can choose a higher privacy level, and suppress your contact details but leave the rest of your résumé open for browsing. An employer interested in you quotes the code number which identifies your résumé, and the job board then contacts you. You respond only if the job interests you.

The job site doesn't charge you — it charges employers for the privilege of browsing résumés on the site.

LOCAL VERSUS OVERSEAS

Paul Bassett, CEO of www.seek.com.au, believes his job board is the largest in Australia. It lists about 40,000 new jobs each month, of which, he says, 10,000 are in IT. However, on a randomly chosen day in November, we only found 6,804 IT jobs, and more at seek.com.au's competitor, www.jobnet.com.au. According to Bassett, "Seek.com.au built the Australian online recruiting marketplace." The site claims to have 600,000 unique users and the highest traffic level of any job board in Australia. In a survey conducted last year, *Choice* magazine rated Seek number one job site overall.

But Seek is not international in the way that Monster.com.au is, which has a true job board presence in nine European countries, Canada, the US, Hong Kong, Singapore, India and, of course, Australia and New Zealand. The www.monster.com URL takes you to an international site, which redirects you to other countries.

Monster.com admits it advertises fewer local jobs than some boards, but says it's a must-visit for IT professionals who want to branch out geographically. See the table on the next page for a comparison of job boards according to IT vacancies.

Online alliances are common. Seek is associated with Yahoo, Telstra, Optus, Yellow Pages and Excite, while Monster.com.au is associated with ninemsn, BuyDirect, ZDNet and others.

THE EIGHT CRITERIA FOR JUDGING JOB SITES

- 1. VOLUME:** *Seek and JobNet have the most listings.*
- 2. FRESHNESS:** *Jobs must be new. Look for accurate "first posted" dates. Are old jobs being deleted?*
- 3. SPEED:** *The site must be quick, logical and easy to search. JobNet and Byron show 100 jobs per page — an excellent presentation!*
- 4. HELP:** *Are career management tools, advice or newsletters available? The site should be more than just a job list.*
- 5. PRIVACY:** *Make sure that the site is secure and your privacy is respected. This applies to features such as job emails and online résumé storage.*
- 6. EMAIL:** *Sites use different names. Look for an automatic job search agent that emails you each time it finds a job suiting the profile you have entered.*
- 7. RÉSUMÉ:** *The site needs a good online résumé building tool. Employers pay to search online résumés. Comprehensive résumé tools build better databases, which better suit bosses.*
- 8. RANGE:** *Do you need to look outside your own geographic area? Monster.com is the world site winner.*

"YOU HAVE TO LOVE WHAT YOU DO; YOU HAVE TO JUMP OUT OF BED IN THE MORNING, EXCITED ABOUT HELPING YOUR CUSTOMERS SOLVE THEIR PROBLEMS."

ensure that IBM has the right products and people to deal with client issues.

Since the dot com bubble burst, companies won't invest in IT projects unless they see a tangible business benefit.

To be a star in the IT industry, Carullo says, "you have to love what you do; you have to jump out of bed in the morning, excited about helping your customers solve their problems".

Carullo also believes in the importance of development and continuous learning. "To cope with the rapid pace of change

in this industry, you need a strong desire to develop yourself. Without this attitude, you're putting your future at risk."

Walking the talk, Carullo has done post-graduate courses in direct marketing and channel management, and has participated in two executive management programs in the US.

She recommends that salespeople develop a broad knowledge of business and the industry, rather than being content to limit their outlook just to a niche product or service.

Lastly, she says it pays to be nimble, and to be prepared to accept increased responsibility. "Timing is often out of your control, so you need to take opportunities when you see them. If something feels right, go with it."

Despite staff cuts and reduced company earnings across the industry in recent months, Carullo says future prospects for IT salespeople are bright. "Good salespeople always seem to be in demand, regardless of the economic climate."

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PROFILE

ALICIA MACK, MONSTER.COM

ALICIA MACK REGARDS HER JOB AS CONTENT producer at online recruiter Monster.com.au as the perfect balance of technical and nontechnical skills. She plans, gathers and manages the information for the site, so she has to team an understanding of the Internet and related technology with excellent communication skills and an eye for detail.

Mack, 25, joined Monster in September 1999, when the staff numbered six — now there are 70 in five countries throughout the Asia-Pacific region.

She manages all the Asia-Pacific content, and other projects have included Monster's Perfect Career Quiz and Salary Centre, which helps job seekers discover their worth.

She also manages Monster's 16 career experts who provide personalised career information to job seekers.

Mack has an undergraduate degree in psychology from Macquarie University, and describes it as "really useful for any organisation. It teaches you analytical skills, gives you a good understanding of human character and also effective communication skills." Other degrees that may be good for positions such as hers include Communications, Business and English, she advises.

She uses Dreamweaver and Perforce to upload the site's content, and HTML for troubleshooting. She writes, proofs and edits all her own copy.

"I was fortunate enough to start when Monster.com was a very small Internet company, and to see it grow phenomenally over the last few years," she says. One of the best aspects of her career with Monster has been her quick advancement since joining — she's had three different positions in two years.

Although Mack's technical skills have been gained on the job, she considers knowledge of HTML a definite advantage when applying for a position like hers. "It's important that you at least have an interest in the Internet industry and the core technical aspects of the role."

She believes her success as a content producer is the result of her thorough understanding of both the business and the broader Internet community. "I'm interested in the business and I love what I do. I love helping people with their careers while satisfying my own creative desires and career goals."

Short-term, she wants to continue working with Monster, and long-term, her dream job is to manage the content for a music Web site such as Triple J.



Just for fun, go and look at www.tmp.com. Monster.com.au, TMP Worldwide and Morgan & Banks have merged in Australia to form one company. The tmp.com URL takes you to tmp.worldwide via a spectacular but slow-to-load Flash animation.

STUDENT ADVICE

Information on careers can also be found on university, TAFE and college sites. The best and most professional service is the University of New South Wales' site (www.careers.unsw.edu.au). To view the vacancies on offer you need a student number and password, but the general information is open to everyone.

Follow the careers education link for help with interviews, job search strategies, résumés, negotiating salary packages and dozens of other topics. This site is clear, fast-loading, very easy to negotiate, has no ads and should be a model for others to follow on the Net.

ONLINE TESTS

Careermatch.com.au is an online assessment designed to help you find the right sort of job. The test takes about 30 minutes and provides a well-written profile describing nine aspects of your personality (assuming you answered the 44 questions truthfully). The profile is divided into ego, drive, work style and social factors.

The printed feedback or report is so well presented, it could be included with your résumé as valuable information for prospective employers.

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Searching for job vacancies outside the six major job sites can be confusing. Many of the URLs you encounter lead back to the same sites, or to subsets of the same advertisements. For example, itjobs.fairfax.com.au is the same as the IT section of MyCareer.com.au. Similarly, don't bother following links to HotJobs.anything — you'll just be led back to CareerOne. ■

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Numbers of jobs are estimates. Research by Robertson Fox and Philippa Yelland, Nov 2001.

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COMPUTER ANIMATION: ALGORITHMS AND TECHNIQUES

A HEAVY-GOING GUIDE TO THE COMPLEXITIES BEHIND ANIMATION. *By Alan Crawford*

The visual nature of animation can conceal the fact that it's not only artists who are involved in creating these films and graphical sequences; complex mathematical equations and programming techniques play an important role too. This book attempts to provide a guide to using such algorithms.

From the outset, the author, Richard Parent, assumes his audience is technically advanced and experienced in the use

of computer-generated animation. Dozens of complex formulae fill the pages of each topic and readers are expected to be able to convert most equations into their programming language of choice.

The book deals with a huge variety of subjects. Initial chapters offer guides ranging from the effective use of complex mathematical functions through to kinematics modelling and collision simulation. Each topic is covered in

surprising detail and diagrams and illustrations are effectively used to clarify the more complex concepts.

This is an advanced guide suitable only for experienced programmers and animators who have a strong grasp of mathematics and physics. Such readers will find this a comprehensive reference.

Publisher Morgan Kaufmann

Price \$162.25

ISBN 1558605797

The Computer Animator's
Technical Handbook



GETTING YOUR IT CAREER IN GEAR

A PRACTICAL LOOK AT FINDING WORK IN THE IT INDUSTRY. *By Cathie Kennedy*

It's refreshing to find a book that fills a large gap in the selection of IT titles. This is one of only a few titles providing practical information about careers in IT. And it does so admirably.

The book provides an insight into five key career paths: application development and databases; networking and infrastructure; operations and end-user support; ebusiness; and Internet and IT management.

Leslie Goff provides details such as job descriptions, education requirements and technical skills, as well as explaining potential career paths, personal traits suited to the jobs, and a series of "day in the life" case studies.

Although the book was written in the US, most of the information applies equally in Australia. There is only one chapter that has no relevance to Australian readers; detailing geographic locations in

the US with high demand for IT professionals. The reference material chapter focuses on US publications, portals, community and research associations, but Australian readers can still benefit from its contents.

The final word? This is a worthwhile investment for anyone considering a career in IT.

Publisher Osborne/McGraw-Hill

Price \$45

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HACKING EXPOSED: THIRD EDITION

AN INVALUABLE UPDATE OF THIS POPULAR SECURITY TITLE. *By Mike MacCana*

Hacking Exposed: Network Security Secrets and Solutions is designed to teach readers how systems can be compromised, and how to prevent such situations from occurring. It is aimed at intermediate or experienced network administrators, but is also accessible to beginners, with a highly entertaining style that encourages those unfamiliar with the topics

discussed to do the research necessary to keep up.

It covers Windows 95/98/Me, NT/2000 and XP, Linux, Unix and Netware 4/5, as well as PABXs, routers and firewall devices. We found it hard to fault this title. It provides a guide to real design vulnerabilities with practical and technically accurate advice.

The content is timely and includes detailed information about more recent

vulnerabilities and exploits, new platforms (including Windows Terminal Services and XP), newer Unix vulnerabilities and a chapter on wireless networking.

The new content might not be worth the upgrade price, but all APC readers should own a copy of one edition — it's brilliant. And a great price too.

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S2047(B) Epson Stylus Color 200/II/Is/820	\$5
S2049(C) Epson Stylus Color II/IIIs/820	\$5
S2093(B) Epson Stylus 400/500/600/700/Photo	\$13
S2097(C) Epson Stylus /Tm/ Color 200/500	\$5
S20108(B) Epson Stylus Color 800/1520	\$5
S2089(C) Epson Stylus 400/600/800/1520	\$18
S20110(C) Epson Stylus Photo 700/PhotoEX	\$18
S20187(B) Epson Stylus Color 440/640/660	\$14
S20189(B) Epson Stylus Color 740	\$5
S20191(C) Epson Stylus Color 440/640/660/740	\$18
T003(B) Epson Stylus Color 480/900/900N	\$15
T0014(C) Epson Stylus Color 480/900/900N	\$22

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Microsoft Natural K/B PS/2	\$50
Microsoft Internet K/B PS/2	\$40
AAA Windows 98 K/B, PS/2	\$12
AAA Internet K/B, PS/2	\$12
AAA Windows 98 K/B, AT	\$18
Logitech cordless K/B&Mouse	\$118
Logitech Internet K/B	\$40
Logitech Optical cordless K/B&Mouse	\$200

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128MB PC133 SDRAM 168pin	\$43
256MB PC133 SDRAM 168pin	\$72
512MB PC133 SDRAM 168pin	\$175
128MB PC133 SDRAM, Kingmax	\$47
256MB PC133 SDRAM, Kingmax	\$73
128MB DDR DIMM 2100	\$53
256MB DDR DIMM 2100	\$99
64MB Rambus RDRAM 800Mhz	\$49
128MB Rambus RDRAM 800Mhz	\$111

MODEM

56K V.90 Ultra Internal	\$31
56K V.90 Ultra External	\$85
SWANN 56K USB	\$83
SWANN 56K TURBO EXTERNA	\$106
SWANN 56K Smart II EXTERNA	\$137
NETCOMM 56k Internal	\$41
NETCOMM 56k External	\$92

MOTHERBOARD

P4, MSI Intel D850 Pro (423), RD RAM	\$295
P4, Genuine Intel D850GB (423), RD RAM	\$338
P4, Gigabyte 8IDX3, (423), SD RAM	\$264
P4, MSI Intel D845 Pro (478), SD RAM	\$239
P4, Genuine Intel D850MD (478), RD RAM	\$314
P4, Gigabyte 8IDML-C, (478), SD RAM	\$239
P4, ASUS P4B, (478), SD RAM	\$344
P4, ASUS P4T-E, (478), RD RAM	\$424
P3, Gigabyte 6VTXE	\$140
P3, Gigabyte 6VX7-4E, w/ sound	\$151
P3, ASUS CUSI-M	\$137
AMD, Gigabyte 7IXE4, W/Sound	\$132
AMD, Gigabyte 7ZXE, W/Sound	\$172
AMD, ASUS A7V133, U100, w/Raid	\$295
AMD, ASUS A7V266, U100	\$316
AMD, ASUS A7V133-C, U100	\$211
AMD, ASUS A7A266-E, U100	\$302
AMD, ASUS A7M266, U100	\$340
AMD, ASUS A7VL-VM w/Vedio, sound	\$140
AMD, ASUS A7VL133-VM w/Vedio, sound	\$172

Networking

ISA 10M network card	\$25
PCI 10M network card	\$20
10/100 M pci network card	\$21
Intel 10/100 M pci network card	\$89
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COMPAQ Notebook

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Armada 110	Cel 700, 192M RAM, 10G, 24X CDROM, 14.1" TFT, 56K, LAN, WIN ME	\$2,308
Armada 110	P3 800, 128M RAM, 10G, 8X DVD, 14.1" TFT, 56K, WIN ME	\$2,827
Armada EVO	P3-1066, 192M RAM, 20G, DVD, 14.1" TFT, 56K, WIN 98/ME	\$6,232
Armada E500	P3 850, 256M RAM, 20G, 6X DVD, 15.1" TFT, 56K, 10/100, WIN 98	\$4,387
Presario 1200	P3 800, 64M RAM, 15G, 24X CD, 13.3" TFT, 56K, WIN ME	\$2308
Presario 1400	P3 800, 192M RAM, 10G, 6XDVD, 13.3" TFT, 56K, WIN ME	\$3232
Presario 1700	P3 650, 192M RAM, 10G, 24 CD, 13.3" TFT, 56K, LAN, TV OUT, WIN 98	\$2358
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Presario 1700	P3 850, 256M RAM, 20G, 6X DVD, 14.1" TFT, 56K, LAN, WIN ME	\$4,041

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Network HUB 16 ports, 10M	\$119
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Network HUB 16 ports, 10/100M	\$245
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Network HUB 24 ports, 10/100M	\$585
USB 4 Port HUB W/ Power	\$55

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Intel 950 Celeron, S370	\$172
Intel 1000 Celeron, S370	\$183
Intel Pentium III-866, S370,	\$350
Intel Pentium III-1000, S370,	\$428
Intel Pentium 4-1.4G	\$344
Intel Pentium 4-1.5G	\$381
Intel Pentium 4-1.6G,	\$418
Intel Pentium 4-1.7G,	\$498
Intel Pentium 4-1.8G,	\$596
Intel Pentium 4-1.9G,	\$694
Intel Pentium 4-2G,	\$1,082
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AMD Duron Socket A 950	\$150
AMD Duron Socket A 1000	\$156
Duron CPU FAN	\$18
AMD Athlon K7- 1200C	\$233
AMD Athlon K7- 1330C	\$254
AMD Athlon K7- 1400C	\$341
Athlon XP-1600+ CPU	293
Athlon XP-1700+ CPU	365
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Creative DTT2200 5.1 & SBLive DE 5.1	\$372
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Creative FPS1000 4.1	\$115
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Creative SLIM500 Soundworks 2.1	\$173
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64Mb GeForce II MX 400 , TV out	\$150
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ASUS V7100 32Mb Pro MX400 with TV-Out	\$476
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ASUS V7700 32Mb GeForce 2 TV out TV Tuner	\$623
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ASUS V7700 TI 64Mb GeForce 2 Deluxe Titanium	\$188
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ASUS V8200 T2 64Mb GeForce 3 Deluxe Titanium	\$23
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DARREN ELLIS

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WHO WON THE FOOTY OR FLIRT WITH A COMPLETE STRANGER –
AND LET'S YOU DO THE LOT.

2
DEF

3
GHI

5
MNO

6
PQR

8

9



YOU DON'T HAVE TO CAST YOUR

mind back too far to remember life without mobile phone advertisements. It was perfectly conceivable that you could go shopping without seeing a mobile phone store sprouting up in any empty retail space. And it was once unlikely that you would see Richard Branson bearing down on you in a Virgin Mobile-bedecked tank. Those days are gone. While the IT industry as a whole is stagnating, the mobile phone industry is booming.

Making and receiving calls is still the number one use for a mobile phone, but the short message service (SMS) has turned out to be the dark horse of mobile communications. When it was launched in 1992 as part of the GSM (Global System for Mobile) Phase 1 protocol, it was conceived as a low-volume, low-yield service primarily for business use. However, the technology was rapidly adopted by the email-savvy younger generation, and its usage exploded worldwide. It is now estimated that at the end of 2001 there were 30 billion SMS messages sent globally each month — about 1 billion per day.

The largest numbers of users of SM services are in Europe and Asia, but Australian usage is on the rise. Telstra recently reported 70 million messages per month, and Optus 65 million per month. The rise of messaging has even inspired a segment on *Today Tonight* warning of the dangers of "SMS thumb" — a repetitive strain injury from messaging addiction. So why the obsession?

Text messages (as SMS messages are also known) are short and sweet, and can be thought of as email for the mobile phone. They are also more expensive than calling someone. A quick text conversation — say, you ask your friend where



Text messaging just got easier with the release of the Nokia Communicator 5510, which lets you SMS with both thumbs.

they are, they tell you and you reply that you'll be there soon — can cost around 60 cents between the two parties, whereas a 20-second phone call relaying the same information would cost one party half that much. Little wonder phone companies keep pushing their SM services.

The rapid growth of text messaging is due to the information age and the addictiveness of email. Where a friend may not consider picking up a phone and calling you, or going out of their way to talk face-to-face, they wouldn't hesitate for a second to compose a quick email. SMS messaging is part of that legacy.

The current SMS format allows for 160 characters in a message in the Roman alphabet (including punctuation, numerals and special characters), and 70 characters in a message in Chinese, Arabic and other pictographic alphabets.

The 160-character maximum provides quite a lot of writing space, especially if you use abbrev8d wrds :). Truncated words and emoticons first came to life on the Internet, but rapidly spread to SMS, where brevity makes for longer messages. They've now become so widespread that in June 2001, abbreviations such as IMHO, OTOH and others were added to the *Concise Oxford Dictionary* in a special SMS appendix.

NOT JUST MESSAGING

SM services are expanding well beyond simple person-to-person messaging. You can download ringtones, animated graphics and logos for personal use. You can be notified of new emails and faxes, get traffic reports and weather predictions, or even find a partner. Businesses can use SMS to send out virus warnings, advertising, bulletins, stock quotes and news headlines.

In the following pages we'll cover some of the best services available, including some we bet you didn't know were possible with SMS. We'll also explore some sites that let you SMS from the Web for free.

TEXT FEVER

Developments in texting (entering SMS text) reached a peak in October 1997, when the first mobile phones to use Tegic's T9 technology were released by Texas Instruments. T9 (text input on nine keys) allows you to enter text by pressing one key per letter, instead of having to press one key multiple times to cycle through to the letter you want. For instance, entering the word "done" in T9 means that you only have to press 3663 instead of laboriously pressing 3666 6633.

T9 uses a small dictionary to predict words that may appear. The 3663 combination may also be "food", "fond", "dome", "emme", "emne" and "dood", which are either whole words or beginnings of words. If a word doesn't appear in the T9 dictionary, you can swap back to normal texting to enter it.

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FREEBIES, CHEAPIES AND ICQ

SMS FROM THE WEB

AN AMAZING NUMBER OF SITES ON THE WEB ALLOW SMS messaging to mobile phones, but not many sites support Australian carriers. And if you're only interested in sites that allow free messaging, your options narrow even further. There are sites that are free, but they vary in usefulness and speed.

Sending an SMS from a Web site is incredibly easy. We looked at the more reliable free sites, as well as a couple of the pay-per-use sites.

SMSPUP — FREE

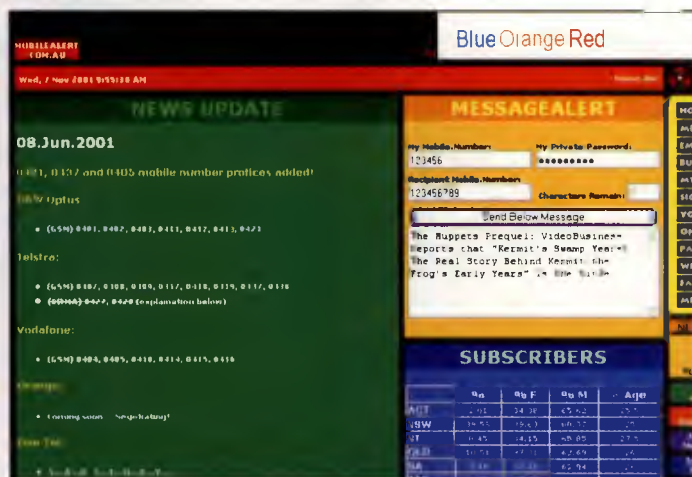
Aussie site SMS Pup offers more than just SMS from the Web. From this site you can also get stock alerts, or send yourself calendar alerts for birthdays or appointments.

Sending an SMS from SMS Pup is easy thanks to its well-defined interface. The service uses some of the characters to apply its own identification header, but it does still leave you with 136 characters. The messages identify you as the sender, and can be replied to in the same way as normal SMS messages.

Of course, nothing is really free. Part of the registration process entails agreeing to have one email or one email and one SMS sent to you by SMS Pup advertisers each week. If that's too much for you, there's an opt-out feature. The service uses a system where each SMS sent costs you "points". You can earn points by clicking advertising links, participating in small online polls, or referring friends to the service.

Online www.smspup.com

Rating ■■■■■



MOBILEALERT — FREE

This is an Australian site that requires detailed registration, but after that it's free. The process may seem like a lot of effort, but MobileAlert was fast and reliable when we tested it — and we weren't beset by advertising or spam of any form, despite the lengthy registration procedure.

Once you've registered (click the "Sign-up" button on the right-hand side and follow the prompts), sending a message is easy. The main page interface couldn't be simpler to use. It includes a small box next to the text input that counts down the characters remaining in your SMS.

MobileAlert SMS messages carry a 20-letter standard header, which truncates messages by 20 characters. They do not carry any obvious identification that points to you as the sender, although your mobile number is included in the header.

If you want the recipient to reply, you have to identify yourself within the message text, and they have to send an SMS back manually. If they just press "Reply" and send a message, it will disappear into the ether.

This service also uses a points system. Points can be earned by logging on to the site daily, or clicking sponsor links. There is also an "EmailAlert" feature, for people who have email but no Net access, so they can send you text SMSes.

The Web site contains some seriously old pages that haven't been updated in a long time; but don't be dissuaded — the SMS part of the service works extremely fast.

Online www.mobilealert.com.au

Rating ■■■■

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BLUESKYFROG — PAY

This site offers more than the others, but is not advertising or loyalty-based. BlueSkyFrog was originally free, but has now moved to a "user pays" model. Everything you send or do on the site costs you "bugz", which you can buy.

You use one bugz for each SMS, and they cost about 20c each. Considering that's roughly what the carriers charge you for sending a mobile-to-mobile SMS, there's very little advantage to be gained from sending an SMS from BlueSkyFrog, unless you don't have access to a mobile. There are quizzes and advertising promotions that can earn you bugz, but BlueSkyFrog encourages you to purchase them.

BlueSkyFrog does have other enticing features. It offers ring tone and icon downloads, organiser functions (such as calendar, organiser and address book), news links and competitions. A sister site, BlueSkySnog, offers online SMS personals. Find someone you like, buy the bugz and SMS them.

Online www.blueskyfrog.com.au

Rating **III**

SEND AN SMS MESSAGE FROM ICQ

ICQ is an instant messaging program that has been around for years, and its integration with other programs is growing. For some time now you've been able to send SMS messages around the globe to contacts on your list. It's not the fastest service, but it is usually reliable and extremely easy. There's one small hitch for Aussie users, though. Presently, only Vodafone supports ICQ SMS in Australia.

There are three ways of sending text messages with ICQ. The first is to use the pull-down menus as if you're sending a normal ICQ message, provided you have filled out the "cellular" section of your contact's details. Any replies to your SMS message arrive in your ICQ inbox, just like a normal ICQ message. Chatting this way is slow, but it's great if the other person is roaming — and it's free!

The second way is to use the ICQ WebPages, a Web version of the ICQ program. These are personalised pages that probably aren't

used much when you can use the actual ICQ client, but they're handy if you're at a Net café or on a machine without ICQ.

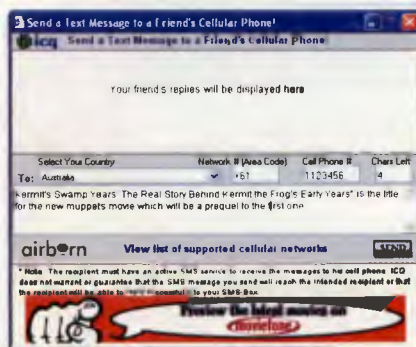
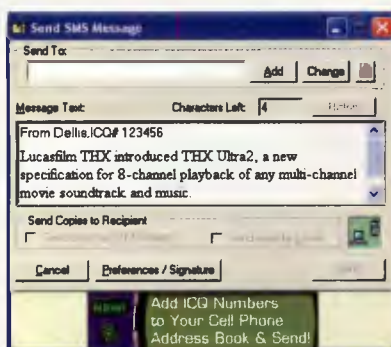
You need to register with ICQ to use the Web SMS facility, but this is just so the site can configure the service and provide an online message inbox and outbox. The message composition screen is similar to a chat dialog box. To send a message, you need to enter the country code (Australia is +61), followed by the recipient's mobile phone number (drop the first 0). Sending from ICQ Web SMS is slower than SMS Pup, with a typical delay of half an hour or more for messages to arrive. Replies to these messages arrive in your Web SMS inbox.

The third way is not to use ICQ at all. You can message a mobile phone from within most email programs via the ICQ SMS centre, by sending an email to [country code][mobile

number]@icqsms.com. This is the most convenient way of using the ICQ service, but the messages can take an extremely long time to arrive. Obviously, this is not useful for time-critical messaging, but for broadcasts and general messages, it's fine. Any replies are sent back to your email inbox.

Messaging in ICQ is not limited to ICQ users; you can add non-ICQ users to your contact list. The Web SMS centre and email SMS option also natively support non-ICQ users.

Any message sent has a header with your ICQ number in it, but still leaves you around 140 characters.



ICQ is a reliable, if slower, way to send SMS messages.

MMS — MESSAGES FROM THE FUTURE

THE SMS STANDARD IS FAIRLY OLD — 160 CHARACTERS

doesn't seem to cut it anymore. WAP (Wireless Access Protocol) was hailed as the next big thing, but surfing the Net and emailing from tiny mobile screens wasn't as much fun as it was cracked up to be. Push services such as news headlines, stock tickers and sports results were the main services that found a toehold in WAP, but the user-to-user messaging side of the technology was an afterthought. The next messaging standard to appear is going to up the ante considerably.

The multimedia messaging service (MMS) should be launched in Australia in the second quarter of 2002. The new standard can be thought of as SMS II, but not everyone can use it. It runs off the GPRS (General Packet Radio Switching) network, and requires a GPRS-capable phone. These won't be available until later in the year, but we can expect to see some colour LCD screens on the higher-end models, and monochrome for the lower.

MMS messages are not just text-based like SMS — you can send audio, video, pictures and text from phone to phone. While message size limits can be imposed, an Ericsson spokesperson said the limit is likely to be 10 to 50KB. That theoretical limit can still carry a few JPGs, a handful of midi files or a huge amount of text. As an indication of the amount of text you might be able to send, this entire SMS feature article adds up to just over 18,000 characters. When saved as plain text, it created a 22KB file — under half the MMS standard.

Which carriers will support MMS and how they will bill for the service is yet to be seen. Possibilities include billing per message (like SMS), or billing according to message size. The latter option seems more likely, as MMS is packet-based — the more you send, the more it costs.

Push service providers are expected to take advantage of MMS and have presented some impressive early beta demonstrations. These have included sporting highlights, online games and coloured stock tickers. ■



The multimedia message service, which allows you to send audio, video, pictures and text — coming soon to a phone near you!

MORE THAN MESSAGING



Turn off the TV, cancel the newspapers, throw away your radio and trash your letterbox! You won't be needing any of these anymore — it's all here. A whole lot of Aussie sites offer SM services from surf reports to stock tickers, but for collections of the best services in one place, look no further than your own mobile phone carrier.

TELSTRA MOBILENET

www.telstra.com/mobilenet

- News
- Finance
- Weather
- Surf reports
- Sports scores
- Games

VODAFONE

www.vodafone.com.au

- News
- Finance (ASX, NASDAQ, AMEX)
- Weather

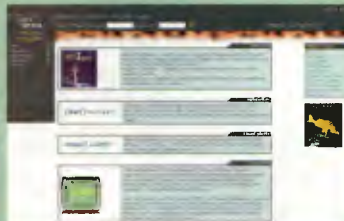


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- Insult of the day
- Quote of the day
- Verse of the day
- Email alerts
- SMS to email
- Web to SMS
- Address book
- Calendar
- To do list



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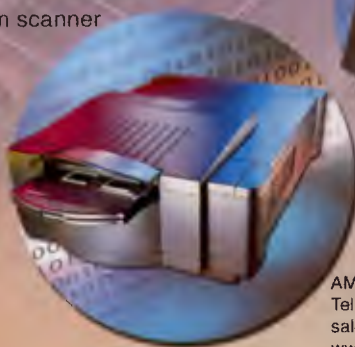
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JUST FOR FUN

WE'VE DONE SOMETHING A LITTLE DIFFERENT THIS MONTH. WE ASKED APC'S ECLECTIC STAFF TO SUBMIT THEIR CHOICE IN HOLIDAY READING, AND THE RESULT IS A DIVERSE COLLECTION OF TITLES FOR WHILING AWAY THE HOLIDAY HOURS. ENJOY!

ENIGMA

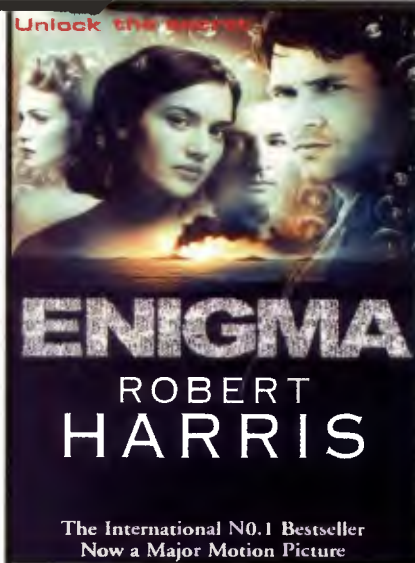
An enigma is something with a hidden meaning — a puzzle. The encryption machines used by the Germans during the Second World War to protect radio messages were given the name "Enigma", and as the title of Robert Harris' novel (reissued to tie in with the movie), *Enigma*, it is doubly apt, as it is a wartime mystery involving those messages.

Compared with *Cryptonomicon* by Neal Stephenson, which has a similar setting, *Enigma* is light on technical detail; it provides just enough material about cryptography to get the reader through. The code-breaking activity at Bletchley Park provides a motif: governments are sometimes economical with the truth, seeing a "big picture" advantage in keeping their citizens ignorant of certain facts, and the same can happen between individuals, regardless of the fact that they are friends or lovers. Sometimes, it's not even necessary to lie — merely feigning ignorance can be enough.

Harris evocatively describes wartime Britain, from a "perfectly vile" whale meat dinner to the darkness of the blackout, from the petty bureaucracy to the rivalry between the Allies (the British had the ability to break the German codes, but unlike the Americans, lacked the resources to build sufficient machines for prompt decryption).

If you missed *Enigma* the first time around, make sure you get hold of this gripping and highly enjoyable tale this time round.

Stephen Withers



Publisher Random House

Price \$19.40

ISBN 0099416883

DEAD FAMOUS

Famous for scripting TV comedy landmarks *The Young Ones* and *Blackadder*, Ben Elton has little regard for the recent reality television craze. Indeed, he insults so many media types in his seventh novel that it's hard to imagine him getting a TV gig again. Bimbo hosts, megalomaniac producers and cringeworthy newspaper coverage all get a serve.

Fortunately for his career, Elton's just as funny in print as he is on screen, having largely ditched a tendency to mawkish earnestness. Check out the dialogue between Chloe, the host of the book's reality show, *House Arrest*, and the first evictee:

"So were you really, really shocked to be nominated?"

"Well, you know, all life is a season and seasons change. I really, really believe that . . . You have to be positive in your own head space, the mind is a garden, it needs constant weeding."

"Fantastic, and what about Jazz's cooking. Was that wicked or what?"

"Totally wicked."

Reality fans will be fixated by the accuracy of the satire, while those who hate the whole concept will nod their heads in disgust. Even better is the cracking plot. Yep, despite the ever-present cameras, one of the housemates ends up murdered. How did that happen?

This puzzle carries *Dead Famous* past the point where mere parody might have become tedious, turning it instead into a synthesis of Agatha Christie's *And Then There Were None* and a behind-the-scenes showbiz documentary. Required reading for comedy fans.

APC Staff



Publisher Random House

Price \$30.95

ISBN 0593048059

TRUE HISTORY OF THE KELLY GANG

It may be no coincidence that, in the age of email, Peter Carey has revived the epistolary novel; the innovation of the Internet in the 20th century parallels the development of the public postal service in the 18th, when novels constructed as a series of letters became fashionable.

These letters are a one-way communication, however. Kelly addresses himself to a daughter whom he will never meet and from whom he can expect no response. What is the point of a letter that will not be answered? Carey's purpose is not to invite dialogue; plenty has already been said both for and against Kelly. Instead, he has performed an act of ventriloquism: he has reached back to make Kelly reach forward, to give him an opportunity to speak without being silenced.

A letter that is not answered is a letter that is not contested. It is often said that history is written by the victors, and Kelly was no victor. It is a fictional Kelly who speaks, but one who could represent many poor, rural Australians of that time. Conditions were sufficiently desperate that the choices Kelly made were understandable. Justice was arbitrary; its governing principle often nothing more noble than self-preservation.

It is this that Carey captures so vividly. The power of the book lies in its language; he has created the voice of a man with little education but with more than enough intelligence and emotion to use the language available to him.

Punctuation can be an impediment to passion: the letters do not contain a single comma. The effect is of a rush of words cascading from a man who knows his time is up. As the "traps" (police) close in, his language and vision develop a desperate, fantastic zeal. Carey has given Kelly a gift: the chance to be heard, and to be understood.

Jocelyn Hungerford



Publisher University of Queensland Press

Price \$22

ISBN 0702232637

THE VOYAGE OF THEIR LIFE

Diane Armstrong was nine years old when she boarded the Derna in Marseilles and set sail along with 544 other European passengers. It was 1948, and most had found their way to Marseilles from displaced persons camps, death camps and labour camps. They were leaving a familiar but lately terrifying world to face an uncertain life in Australia and New Zealand — but a life which carried the hope of peace.

Fifty years after the voyage, Armstrong embarked on another epic journey. She tracked down more than 100 of the Derna passengers, and using their recollections and memorabilia — diaries, photographs, newspaper clippings and letters — as well as archival documents, recreated the voyage and traced what became of their hopes and dreams.

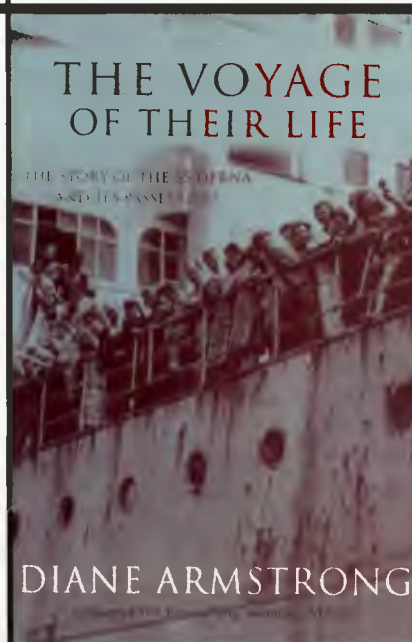
The first half of the book is written as a novel, and weaves the facts Armstrong discovered into a wonderfully detailed account of the monotonous routine and squalid conditions of shipboard life. Interspersed with this narrative are accounts of the hardships and suffering that the passengers underwent in their homelands during the war.

By the time the vessel arrived at its final destination, Melbourne, almost three months later, it had made a notorious name for itself, thanks to reports and rumours that had spread following its many stops. It was met by reporters waiting for "first-hand accounts of the overcrowded hellship bringing Jewish Communist agitators to Australia".

The second half of the book documents another kind of voyage — the life voyage of those 100 passengers since their arrival in a country which, Armstrong notes, was "xenophobic".

This entertaining and eye-opening read provides important lessons in history, and is cause for contemplation about our own attitudes and those of our country. Little did Armstrong know when she began her project that it would prove so topical upon its release.

Lindsay Hayman



Publisher HarperCollins

Price \$29.95

ISBN 0732268680

GONZO MARKETING

WINNING THROUGH WORST PRACTICES



CHRISTOPHER LOCKE
co-author of the *cluetrain manifesto*

Publisher Hardie Grant Books

Price \$29.95

ISBN 1740640367

GONZO MARKETING: WINNING THROUGH WORST PRACTICES

ClueTrain Manifesto co-conspirator Christopher Locke has little respect for many aspects of modern marketing, including mass marketing, permission marketing, CRM and branding, and in *Gonzo Marketing*, argues that there are more motives behind people's actions than traditional marketing theory recognises.

He recommends providing services to customers that are outside the scope of immediate selling (for example, building online communities geared towards more than direct selling) and allowing the personalities of staff to shine in company communications. In this way, businesses can establish a more genuine, and successful, relationship with modern media-savvy customers.

Woven into this message are Locke's complaints about . . . well, just about everything. The book reads like a (well-written) rant one might see on an online forum — but that's okay — *Gonzo Marketing* is meant to provoke and challenge those involved in marketing, public relations, journalism, politics and, er . . . just about everything else. Surprisingly, Locke doesn't focus on dot coms for examples of things done correctly; in fact, he's often scathing towards them. Instead, companies such as Ford and Benetton are discussed. This works to Locke's advantage, as it makes him seem less like yet another Internet pundit screaming that the Web somehow "changes everything" (which, of course, he is).

The best features of *Gonzo Marketing* are its humour (you won't find many other business books that quote Zero Wing and Courtney Love) and its engaging content. Locke's ideas don't change things as much as he'd like, and his assertions that online folk "won't fall prey to the clever tricks" of traditional marketing ring hollow; in the end Locke simply comes up with a cleverer set of tricks. Nonetheless *Gonzo Marketing* certainly gets ideas flowing.

Mike MacCana



Publisher Pan Macmillan

Price \$21

ISBN 033036281X

LOVE IN A DARK TIME

When Irish writer Colm Tóibín was first asked to write about his own homosexuality in 1993, he promptly declined. But with encouragement from the editor of the *London Review of Books* — for whom he had been writing about Irish books and Irish history — Tóibín began reading books about or by gay writers, and for the next seven years found himself writing constantly on the works and lives of some of the greatest homosexual artists of the past two centuries.

The culmination of his interest is the book *Love in a Dark Time*, an intriguing study of Oscar Wilde, Roger Casement, Thomas Mann, Francis Bacon, Elizabeth Bishop, James Baldwin, Thom Gunn, Pedro Almodovar and Mark Doty — artists whose homosexuality remained obscure for much of their lives.

This is an ambitious book, but Tóibín's endless curiosity delivers powerful insights. He read all he could find written on, and by, the artists, scrutinising personal letters to build a picture of the state of mind of each. With great style, he analyses and articulates how the phases of each individual's life — and their struggle with their sexuality — is reflected in their writing and their art.

The book also provides an inimitable historical perspective, highlighting how society has changed over the time that spans the lives of the artists who have been profiled (1850s to 1950s).

This is a truly remarkable book that will leave an impression well after the last page has been read. It's by no means merely a light summer holiday read, but one you're sure to find compelling. And you'll certainly view the artists' work in a new light afterwards.

Cathie Kennedy

THE HOLE IN THE UNIVERSE

This is the *Seinfeld* of the book world: it's a book about nothing. Except it's Nothing with a capital N. The central question is one that has plagued scientists and philosophers throughout history: what is nothing? You could be forgiven for expecting this book to be a fairly sophisticated scientific exploration of the subject. In fact, it is very light on scientific detail — perhaps too much so; the slightly condescending tone may annoy regular popular science readers.

Author KC Cole discusses the rise and fall of ether, various field theories, and other attempts to explain — or at least, describe — what nothing is.

She also covers the various approaches taken by philosophers such as Descartes, Aristotle and Kant. On top of all that, there's the religious angle as well. Unfortunately, Cole seems mainly concerned with Buddhism and Judeo-Christianity and even then, only in their more mainstream manifestations. However, this may be the book's redeeming feature, as it looks at the gap between scientific and esoteric research, and how that gap has shifted with the momentum of scientific discoveries in the past century. Cole investigates the impact made by relativistic "spacetime" and quantum mechanics on our modern understanding of nothing, and how that compares with more traditional perspectives.

The book covers a lot of intellectual ground, dabbling in a wide range of discourses on the void, emptiness, vacuums and zero. There is a lot to think about, but not much to sink your teeth into. For newcomers to popular science, this may be a good alternative to jumping in at the deep end. If you are a frequent reader of popular science titles, however, you may find this book a little too light.

Daniel Potts

Harcourt is offering APC readers freight-free delivery of The Hole in the Universe if you mention "APC writers' selection holiday reading" when ordering.

The Hole in the Universe

Now Scientists
Peered over the Edge of Emptiness
and Found Everything

K. C. COLE

author of THE UNIVERSE AND THE TEACUP

Publisher Harcourt

Price \$34.65

ISBN 0156013177

FROM HELL

It seems Alan Moore can do no wrong when it comes to comic novels. Renowned for his amazing superhero opus *The Watchmen*, he followed it up with the equally astounding *From Hell* — a retelling of the Jack the Ripper tale. Written by Moore and illustrated by Eddie Campbell, the 16-part story took 10 years to complete. This version, which contains all 16 issues in one collection, has been reissued as a tie-in for the upcoming movie, starring Johnny Depp and Heather Graham.

It's hard to imagine how the movie will capture the feel of this graphic novel, as it's an intriguing and complex read. Moore dredged up as many facts as he could about the famous 1888 Whitechapel murders, and has woven a deeply disturbing story around them. This makes for a historically accurate storyline, but the way the tale weaves backwards and forwards through time adds an air of unreality.

The basic premise is that Queen Victoria's grandson impregnates a lowly shopkeeper, and it is up to Sir William Gull, the royal physician, to handle matters in a "discreet" fashion to keep the mother from talking.

Years later a group of prostitutes learn of the child's real parentage and set about blackmailing the royals. A scandal of this nature would rock London and besmirch the royal family's name, so Gull and his "methods" are called upon again. Moore handles the resulting murders, cover-ups and fallout from the case in detached but graphic detail.

The book is full of historical figures — Queen Victoria, Oscar Wilde, Aleister Crowley, the Elephant Man — and has elements of mysticism thrown in for good measure. The writing is first rate, and the artwork is incredible — simple pen and ink, but it captures the Victorian period's underlying broodiness well.

Darren Ellis

FROM HELL

alan moore • eddie campbell

WITH A MAJOR MOTION PICTURE STARRING JOHNNY DEPP, HEATHER GRAHAM AND EDDIE IZZO

Publisher Bantam

Price \$45

ISBN 1863253122



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www.apcmag.com/books



PC

ALIENS VS PREDATOR 2

MONOLITH HAS TAKEN OVER THE ALIENS VS PREDATOR FRANCHISE TO GIVE YOU THREE MORE WAYS TO BLOW ENEMIES AWAY. *By Daniel Gardiner*

The original Aliens vs Predator (AvP) is split into three sub-games. There are three characters (a human Marine, a hunter Predator, and a drone Alien), each with its own set of levels, markedly different styles of play and distinct strengths and weaknesses.

For AvP2, the franchise has switched to Monolith, the company responsible for 2000's best FPS, No One Lives Forever (see *APC*, April 2001). It has also moved to the spiffy Littech engine, and offers some lavish

and spooky outdoor scenes.

As in the original, the Marine levels are the most enjoyable: you get to run down darkly lit corridors, blowing the crap out of aliens with big guns. Ahem.

The Predator section is equally well designed. Hunting down both humans and aliens using a plethora of lethal weapons and cool technologies captures the spirit of the films almost perfectly.

The Alien levels are completely different again — you don't have any ranged weapons, so clinging to ceilings and hiding in shadows is essential to staying alive.

Despite the new developer and engine, the sequel is very like its

predecessor. However, it uses the recipe quite well. It's more polished, sound is first-rate, and so is level design — although it doesn't leave much room for exploration.

The biggest improvement is in storyline. The Marine levels are particularly well scripted. Storyline weakens a little in the Predator section, and is virtually non-existent in the Alien section, but this is in keeping with the character of each species.

AvP2 is definitely better than its predecessor, but it suffers from one important flaw — like AvP1, it's too short. FPS veterans will have no difficulty getting through it in one or two days. However, multiplayer helps replayability.

AvP2 is a first-class game; if you're a fan of the films, you shouldn't miss it. ■

Online aliensvspredator2.sierra.com
Price \$89.95



For more of the latest games reviews, visit www.apcmag.com/games



MATT HOFFMAN'S PRO BMX

Based on the excellent Tony Hawk Pro Skater engine, Pro BMX offers more of the same, but with bikes. Perfect for those of us who bemoaned the short game-life of Pro Skater!

Online www.activision.com
Price \$49.95



CIVILIZATION III

Sid Meier is at it again with this third instalment in the Civilization series. Once again, you build a grand civilisation from scratch and interact with great figures from history. The classic "just one more turn" gameplay is back as well, along with randomly generated maps and a new ability to conquer rival civilisations through cultural influence, not warfare.

Online www.civilization3.com
Price \$99.95 FULL REVIEW ONLINE



THE ART OF MAGIC

This hybrid role-playing/real-time strategy game casts you as Auran, a novice mage who has the ability to conjure armies of creatures to battle your enemies.

Online www.art-of-magic.co.uk
Price \$69.95



JAK & DAXTER: THE PRECURSOR LEGACY

PS2

THE PS2'S FIRST BIG-TIME
PLATFORMER PUTS THE
GENRE ON NOTICE THAT THE
FORMULA FOR GAMING IS
CHANGING. *By Kevin Cheung*

As Crash Bandicoot is no longer a Sony-exclusive hero, the company has been looking for a new mascot whose visage could become synonymous with the PlayStation2. It didn't sound like a great idea at first, but developer Naughty Dog conjured up Jak & Daxter, an offbeat buddy game in which the jumps, spins, music and wackiness bear more than a passing similarity to Crash. Given time, however, Jak & Daxter grows on you.

Set in a fantasy world of primitive

magic and high technology, it has lovable characters and solid performance. Its design is blessed with many innovative subtleties that are sure to force the genre to evolve. For instance, it won't be long before Crash Bandicoot's limited corridor movements will look like a relic of a bygone era.

The elvish Jak and Daxter live on a network of tropical islands bordered by jungles, lava swamps and misty islands. Their elders are obsessed with discovering the secrets of their ancestors — or "Precursors". When Daxter manages to get himself turned into a talking "oxel" (a cross between an otter and a weasel), he and Jak must travel north for a cure, necessitating a search for Precursor Orbs to trade for equipment crucial to the journey.

In doing so, they also help solve the mystery of the Precursor Legacy.

The landscape is enormous; vast rolling hills, trees, caves and ancient building sites, and rivers and beachfront locations that gently gurgle. All of these locations are created in vivid, rippling colours that change in real-time, as day turns to night and back again.

Apart from the initial start-up screens, there's no loading to wait for. Jak & Daxter is a seamless experience, with virtually no sense of moving between levels. Of course, you do, and you also collect orbs, energy balls and so on, but you're not really conscious of it. You react more spontaneously and are more open to experimentation and exploration. Not since Banjo Kazooie, or even Super Mario 64, has there been a 3D platformer whose virtual world is as naturally immersive as this. ■

Online www.jakanddaxterlegend.com

Price \$99.95

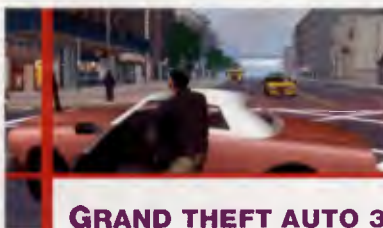


WWF SMACKDOWN: JUST BRING IT

The wrestlers may be big, sweaty and oafish, but this time they also move at frightening speeds, adding a sense of the sheer volume of muscle being thrown around.

Online www.smackdownrsvp.com

Price \$99.95

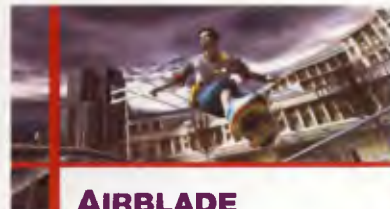


GRAND THEFT AUTO 3

The first 3D version of the cult crime simulator, GTA3 takes place in a city of immense size, packed with pedestrians and traffic. You can carry out jobs for crime bosses at your own pace, but watch out for cops and rival gang members.

Online rockstargames.com/grandtheftauto3

Price \$99.95



AIRBLADE

This hoverboard skating game offers a combination of flash futuristic visuals and Tony Hawk-style tricks and jumps.

Online www.au.playstation.com/airblade

Price \$99.95



SHREK

DREAMWORKS' SECOND CGI ANIMATED OUTING CONTAINS A WINNING RECIPE FOR COMEDY — AN OGRE, A PRINCESS, AND A TALKING ASS. *By Darren Ellis*

It would be hard to be unaware of Shrek's release on DVD and video, thanks to a blanket marketing campaign and hype. It's one of those films, like *Toy Story*, which prove that animated movies don't have to follow the Disney formula, but can be intelligently written for all ages and beautifully animated.

If you liked the movie, you'll love the DVD. It's obvious that releasing the movie on DVD wasn't an afterthought — a lot of trouble has gone into the production, from the newly animated menus to the games and oodles of extras.

VIDEO

The movie was animated digitally, so there was no film-to-digital transfer process when converting the movie to the DVD format. This means the colours are bright, there are no visible artefacts and the detail is superb. The film is presented in 16:9 anamorphic format.

AUDIO

There's a lot of dialogue in the movie, so most of the audio comes from the front speakers, but in a few scenes (the fights in particular) the surround speakers get a workout and all the audio is crisp and clear. *Shrek* has an impressive line-up of languages in Dolby Digital 5.1, including English, Spanish, Portuguese and Catalanian.

EXTRAS

The bonus features have been getting a lot of advertising hype,



Think you can escape the influence of the fat green guy? Think again!

and rightly so. If you've got a DVD drive in your PC you're going to get the most out of this DVD, as there are both DVD-Video and DVD-ROM bonuses on the disc.

There's an innovative ReVoice Studio for the PC that lets you record your own voice speaking the characters' dialogue in scenes, which is a lot of fun for kids and extremely easy to run.

Some of the other features are quite basic, such as the "Dress the Gingerbread Man" section, where all you can do is see the Gingerbread Man dressed differently — no interaction at all. The extended ending is well done, and there are plenty more games and features included that make *Shrek* a worthwhile purchase. ■

Price \$39.95

THE MUMMY RETURNS

The sequel is bigger, longer and more action-packed than the first movie, but it's not necessarily better. There are two jam-packed DVDs worth of extras and features to make up for it, though, which makes the package a welcome addition to the library.

Price \$36.95



V: THE MINISERIES

This double-sided DVD contains 196 minutes of resistance fighting, aliens with a penchant for human meat, and a whole lot of empty pantry space. Bonuses include full length commentary (with some great bloopers) and a behind-the-scenes documentary.

Price \$32.95



DVD USERGROUP AWARDS

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■ As voted by 5,500 DVD enthusiasts at www.dvdusergroupawards.com



WEBFILE GO SITE-SEEING

MEMEPOOL

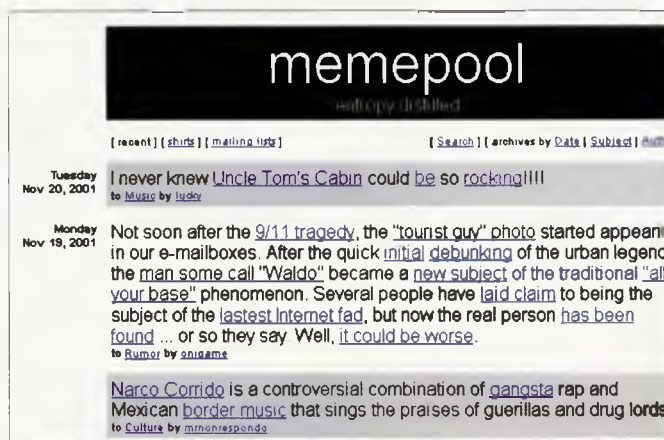
www.memepool.com

Sort of a cross between **fark.com** and **Ananova.com**, but without the truly bizarre bent, Memepool is basically a links page.

Individual subject paragraphs include a variety of links related to a theme, providing information and background stories or alternative views on a given topic. Broad categories include religion, sex, politics, music, wackos, Internet, art and fashion.

Not to be taken seriously.

Darren Ellis



THE HITCHHIKER'S GUIDE TO THE GALAXY

www.h2g2.com

Is your knowledge of misanthropy lacking? Feel you don't have a firm grasp of emergency cannibalism? Don't panic, just check the guide. Inspired by Douglas Adams' hilarious series of sci-fi novels, h2g2 is an encyclopaedia of quirky and offbeat explanations of life, the universe and everything.

Daniel Gardiner



THE LAIR OF THE MARROW MONKEY

www.marrowmonkey.com/chroma

com/chroma

It's music. It's a game. It's a lesson. It's art. Perhaps it's all of these. Told in shockwave, Chroma is a story about a scientist (and his lab monkeys) trying to find a way back into "nmenonos", a natural Internet where minds travel freely, unhindered by the limitations of the physical world. It's an experience.

Daniel Gardiner



THE OSCAR SKETCHBOOK

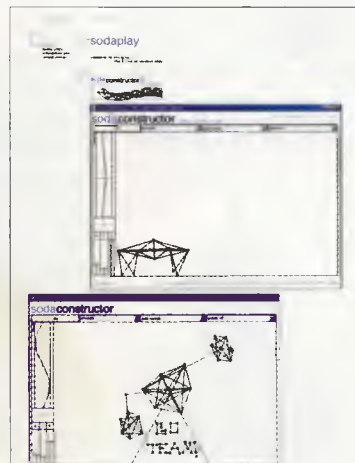


www.nma.gov.au/showcase/index.htm

Oscar was an Aboriginal boy from the Palmer River people of North Queensland. Given a sketchbook by his "overseer", who noticed Oscar's talent for charcoal drawing, Oscar created a moving record of an Aboriginal child's memories of life in the late 1800s. A fascinating document.

Fiona Angus

SODA CONSTRUCTOR



www.sodaplay.com

Reminiscent of a diabolical experiment, this is a sure way to waste hours. Manipulate springs, masses and muscles to create complex walking creatures. Originally a Java programming showcase, the Soda Constructor includes a "zoo", into which you can upload models for real-time manipulation. Build your own Star Wars Imperial Walker.

Matt Overington

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APC 11/2001

INTERNET CONNECTION SHARING

INTERNET CONNECTION SHARING CAN HAVE MANY BENEFITS.

HERE'S A GUIDE TO SETTING IT UP ON THREE DIFFERENT WINDOWS.

WINDOWS 98SE

Sharing an Internet connection between several computers in one house or office can be extremely desirable. Sharing either a broadband connection or a modem helps free up telephone resources and reduce the cost of Internet providers.

Internet Gate 1.51

Shareware — www.maccasoft.com

This small application is designed to enable sharing of an Internet connection between two machines running Windows 95/NT4 or above. It works with both dialup and permanent Internet connections. Most of the control for the program is accessed via the main window's two tabs: "Proxies" and "Connections". The first enables you to set up a wide range of proxies on the host computer, while the latter shows you a list of people connected through the gateway. A high level of control is included, so you can block access from IPs to URLs or hosts.

PPPSnar Lite 1.3

Shareware — www.pppinfotech.com

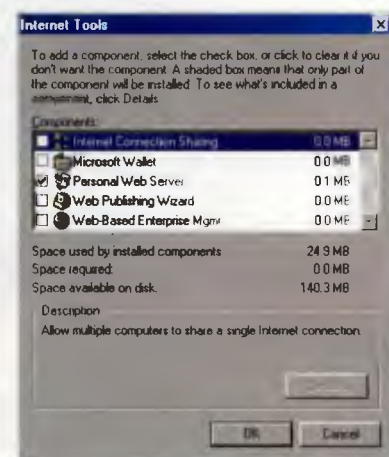
PPPSnar is a small, lightweight proxy server that enables you to share any Internet connection between several computers. The lite version provides access for three client machines to use the services and share an Internet connection from one computer — ideal for most homes. The software only has to be installed on the gateway machine, where it will listen on port 81 for data requests from client machines. Their browsers are configured to use the gateway machine as a proxy computer, looking specifically at port 81 instead of the HTML default (80). PPPSnar lite is, however, not easy to use unless you are familiar with networking two computers in the first place.

It is relatively straightforward to share an Internet connection between several computers by way of a wireless or cabled network, and recent versions of Windows have included software applications to assist in this task. Unfortunately, the Internet Connection Sharing wizard included with Windows 98 was not initially very polished. It was difficult to configure, and prone to failure. Subsequent Windows releases have greatly improved on it, to the point where Internet connection sharing under Windows XP is automated and extremely easy.

The following steps are for using a cable-based LAN to share your Internet connection through one computer. The steps remain the same if you are using a wireless connection.

Step 1 The first step is to uninstall Internet Connection Sharing if it is already installed. This is accessed under the Add/Remove Programs tab of the Control Panel. Select Windows Setup and make sure that under Internet Tools, Internet Connection Sharing is not ticked.

Step 2 Also under the Control Panel, double-click on Network. A list of the installed components should be displayed, and it should include NetBEUI (for each network card or dialup adaptor), TCP/IP (for

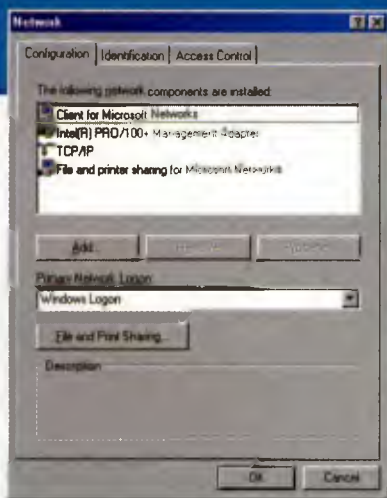


► *Uninstall Internet Connection Sharing if it is already installed.*

each network card or dialup adaptor), Client for Microsoft Networks, and File and Printer Sharing for Microsoft Networks.

Step 3 If any protocol is not installed, click on Add at the bottom of the window and install them. NetBEUI and TCP/IP are found under the Protocols setting, Client for Microsoft Networks is found under Clients, and File and Printer sharing is under Services. After updating the list of installed protocols, clients and services, reboot the computer.

Step 4 It is a good idea to test your Internet connection after rebooting — make sure that you can still access Web sites as usual. It is not very useful to try to share a faulty Internet connection, and testing now can save you a lot of frustration later.



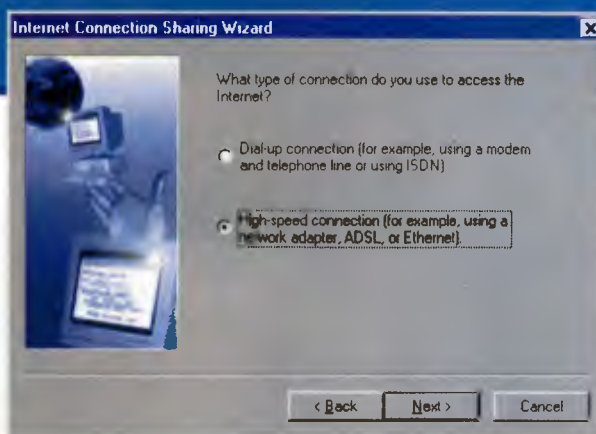
► Copy the configuration list from the host computer to the client machines.

Step 5 Now it is time to configure the client computers. You need to copy the configuration list from the host computer almost exactly to get the client machines working smoothly. The only difference will be that you will only have one network card in the client machine, so the TCP/IP protocol will only be installed once, as there is no need for your client machines to have the dialup adaptor service installed. Don't install NetBEUI on the client machines either.

Step 6 Highlight the TCP/IP tab on the client machine and select Properties. Under the IP Address tab, select "Obtain an IP address automatically". Select the DNS Configuration tab and disable the DNS. Next, select the Gateway tab and delete any installed gateways. Ignore any NetBIOS, Advanced or Bindings tabs and reboot.

Step 7 Now Windows should be clear of configuration data, and it will default to automatic network configuration. You are then free to configure the Internet Connection Sharing component. Keep in mind that you now only have to install the ICS component on the host computer. Under the Control Panel, select Add/Remove Programs, and then Windows Setup.

Step 8 Under Windows Setup, highlight Internet Tools and click Details. Select Internet Connection Sharing, which will launch the ICS setup wizard. After the



► If you use a cable modem, choose the "High-speed connection" option.

wizard has commenced, don't press Cancel or restart the computer or you will have to start again.

Step 9 If you are sharing a connection over a modem, the next screen should say "To select the connection you want to use to access the Internet, start the Internet Connection Wizard". If this is correct, press Next. If not, make sure that you have the right protocols and clients installed as in Step 2. Click through the remaining steps and reboot the computer upon completion.

Step 10 If you are sharing your Internet connection via a cable modem, choose the "High-speed connection" option under the Internet Connection Wizard. First, select the NIC that leads to your Internet connection, then the NIC that is



► Set the TCP/IP properties on the client machines.

connected to your hub. After being prompted to make a network setup disk, you can reboot the computer and your Internet connection should be shared between any client machines you've configured.

Sygate Home Network

Shareware — www.sygate.com

Sygate Home Network is one of the more feature-laden implementations of gateway/proxy software. Occupying less than 10MB of hard disk space, this application has many excellent features that are not matched by any other software we've looked at. In addition to supporting the standard list of protocols (HTTP, FTP, NNTP, Telnet, IRC, RealAudio, POP3, SOCKS, SMTP and DNS), an adequate firewall is included, as is a facility to enable you to set up time-based permissions and shut out certain users during certain times of the day. Unlike most other proxies, Sygate Home Network actually helps you network the client machines within your home by including a feature to create a floppy disk capable of configuring all the network settings required by the clients.

WinProxy 4.0

Shareware — www.winproxy.com

Another large, full-featured proxy application, WinProxy includes file/IP/URL filters and detailed logging features in addition to a virus option that can scan certain protocols for embedded viruses. A setup wizard is integrated in the software to guide you step-by-step through setting up a firewall and the protocols you want to share via the gateway. Included in the installation is a complete 250-page PDF manual that contains information ranging from defining a home network to advanced filtering and configuration of firewalls and HTTP, FTP, SOCKS, mail, Telnet, RealAudio, DNS, NNTP, DHCP, NetMeeting, Compuserve or AOL proxies.

WINDOWS 2000

After you have assembled the necessary hardware (a computer that you want to serve as the host fitted with a modem or cable modem and NIC, client computers fitted with network cards, a hub and CAT 5 cable), setting up Internet connection sharing under Windows 2000 is somewhat simpler than under Windows 98SE. Although the basic steps are the same — you must configure the hardware and protocols before running the connection wizard

COMSocks 3.06a

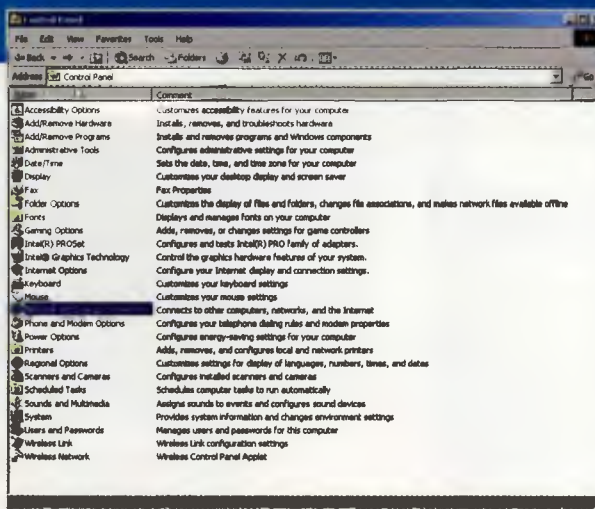
Shareware — www.linkbyte.com

A somewhat simplistic setup wizard belies the power and flexibility of this small Internet connection-sharing application, which is capable of performing NAT (network address translation). Although the layout of the main screens of the software are lacking in detail, and all the options are run from the same window with a variety of tabs across the top of the screen, COMSocks features individual configuration of DHCP, DNS, HTTP, SOCKS, FTP, Telnet, RealAudio, and email proxies. Each individual proxy can be quickly turned on or off, and although a firewall and user-level access restrictions aren't available, the interface appeals to people favouring simplicity over bells and whistles.

ShareTheNet 2.1

Shareware — www.sharethenet.com

ShareTheNet takes a slightly different approach to setting up a shared network by configuring a Linux boot floppy to boot the computer as a dedicated gateway. The only irritating feature is a time limit of 30 minutes operation in the shareware version. You have to reboot the computer every half an hour and load the proxy again, which means that you can't do anything useful via the gateway for longer than 30 minutes — so downloading anything of significant size is out. Where ShareTheNet is a winner is in its simple approach to configuring the firewall, and the fact that it will run on any computer from a 386 upwards. Standout features include the ability to run a DHCP server, DNS, Dynamic DNS, Kali and Ident, along with advanced debugging support and remote configuration (via a Web interface).



► Open Network and Dial-up Connections to see a list of your computer's network connections.

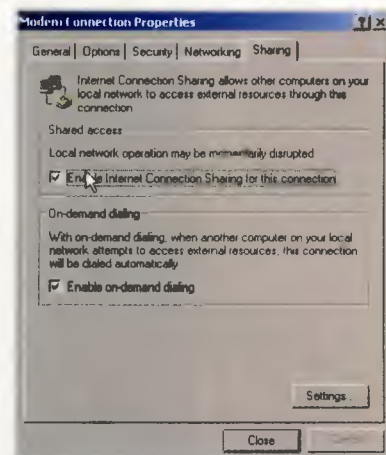
— the Windows 2000 wizard is more advanced than the one in Windows 98SE, and is much simpler in its execution. Initial configuration of the server is vastly simplified, as you don't have to configure the Internet Connection Sharing component separately; it is an option that can be checked within the network configuration screen. Configuration of the client machines is the same as under Windows 98SE; all you need to do is remove all the settings from under the TCP/IP tab, and Windows will be able to find other machines on the local network. Enabling Internet connection sharing with Windows Me is essentially the same process as for Windows 2000.

Step 1 The first step you should take after connecting up the hardware is to set up the host. Under the Start Menu, select Settings and then Control Panel. Double-click on the icon entitled Network and Dial-up Connections. This will open a window showing a list of all the network connections to your computer.

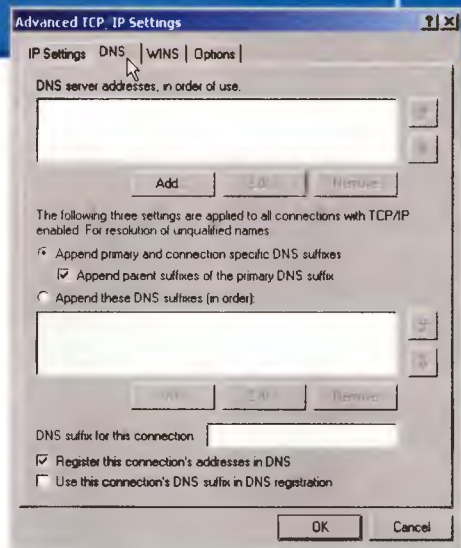
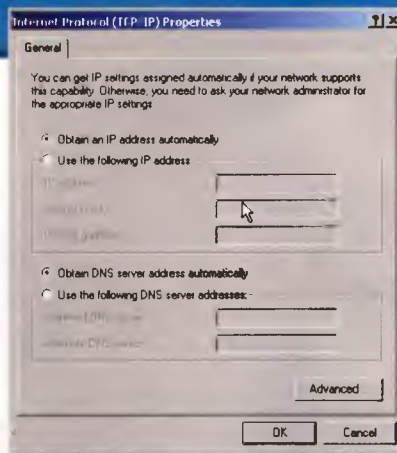
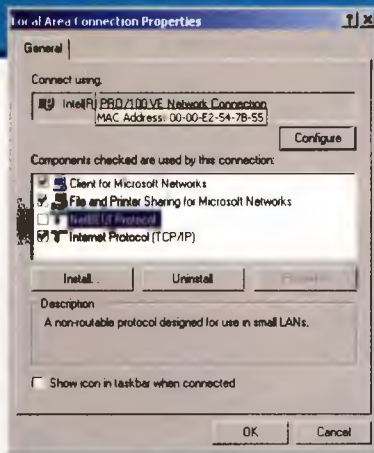
Step 2 You should have at least two devices listed in the Network and Dial-up Connections window. If you have a cable modem connection you will have two NICs listed here; otherwise, you will have a dialup connection and one NIC displayed. If you have no modem or network cards listed, it is possible that your hardware is not configured properly.

Step 3 Right-click on the device that connects to the Internet (this should be either your NIC to the cable modem or the modem itself) and select Properties. Under the General tab is a list of installed components and protocols. Included in this list should be NetBEUI Protocol, Internet Protocol (TCP/IP), and Client for Microsoft Networks.

Step 4 Provided that the list of protocols is present, the computers on your home network will be able to find each other. The final step on the host computer is to choose the Sharing tab next to the General tab, and tick the box labelled "Enable Internet Connection Sharing for this connection". You will usually have to reboot to complete the changes.



► In the Properties box for your Internet connection device, tick "Enable Internet Connection Sharing for this connection".



► The only protocols you really need are Client for Microsoft Networks and Internet Protocol (TCP/IP).

► Selecting the two options shown above will allow your computer to freely find network connections.

► Clear the data under all the tabs so the computer will easily find the host computer.

Step 5 Setting up the client computers is something that is not dependent on the OS — the method is the same whether you are using Windows 95 or XP. Under the Control Panel, select Network and Dial-up Connections. In this window, you should see a listing for the NIC that you are using to connect to the hub or host computer.

Step 6 Right-click on the NIC that you would like to use to connect to the LAN and select Properties. Under the General tab, the following protocols should be included: Client for Microsoft Networks and Internet Protocol (TCP/IP). Note that you don't need NetBEUI installed on your client machines, and sometimes it will prevent ICS from working correctly.

Step 7 Select the Internet Protocol (TCP/IP) entry and click on Properties. Select both "Obtain an IP address automatically" and "Obtain DNS server address automatically". You want your computer to be able to find the network connections freely without needing to request IP and DNS information from another source.

Step 8 Still in the Internet Protocol (TCP/IP) Properties box, click Advanced. Now remove all the data that is listed in the IP Settings, DNS and WINS fields. This will clear the data from the network settings fields so the computer will easily find the host computer on the network.

Step 9 After saving your settings and rebooting the client machine, you should be able to share the host machine's Internet connection. Even if you leave the settings fields in Internet Explorer empty, your browser will still be able to find the Internet connection without being specifically configured.

Step 10 As with Windows 98SE, Windows 2000 doesn't have an inbuilt firewall. If you are sharing your connection between several computers, it would be advisable to install a third-party firewall application to safeguard your computer against outside attacks. Any computer on your network is vulnerable, not just the one that is being used as the gateway.



► Install a firewall such as ZoneAlarm to protect your network.

NetFor2

Shareware — www.netfor2.com

NetFor2 has been designed around sharing an Internet connection between two computers connected via serial cable. The software contains detailed instructions for configuring the direct cable connection element, and getting your two computers to talk to each other. It also provides detailed directions for configuring the gateway (generally via a modem on the "parent" machine). DNS is supported, and ICQ will work from behind the NetFor2 gateway, although no firewall is included, so all your clients have to be responsible for protecting themselves. Unfortunately, NetFor2 has a clumsy and inelegant interface, although the fact that you don't have to change the Internet settings on the host machine aids in simplifying installation.

Proksi

Freeware (for non-commercial use) — no Web site

Proksi is an extremely small and simple free application that acts as — you guessed it — a proxy server. Although it is extremely basic and only acts as an HTTP proxy, it functions without fault, and works well for sharing Web access across multiple machines. Configuration is handled by enabling logins from specific IPs within your own network, and these are then provided access to the Internet. Any requests from unrecognised IPs are ignored. As Proksi works by enabling specific IPs, it is ineffective if you are using DHCP to assign addresses to clients. Within the software, you define the port to use for local transfers, and then configures the browsers on each client machine to refer to that specific port on the host machine for the http proxy.

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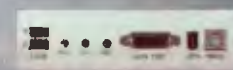


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WINDOWS XP

Internet Connection Sharing in Windows XP is more refined than in Windows 2000 and Windows Me. Sharing an Internet connection across several computers under Windows XP is a trivial task, as a checkbox is provided to enable or disable Internet connection sharing from within the network settings window. A firewall is also included with Windows XP, which provides protection from data attacks outside your home network.

Step 1 The first step is to log into your computer with administrator access, and open Network Connections, accessed by clicking on the Start menu and Control

ArtiSoft i.Share 3.5

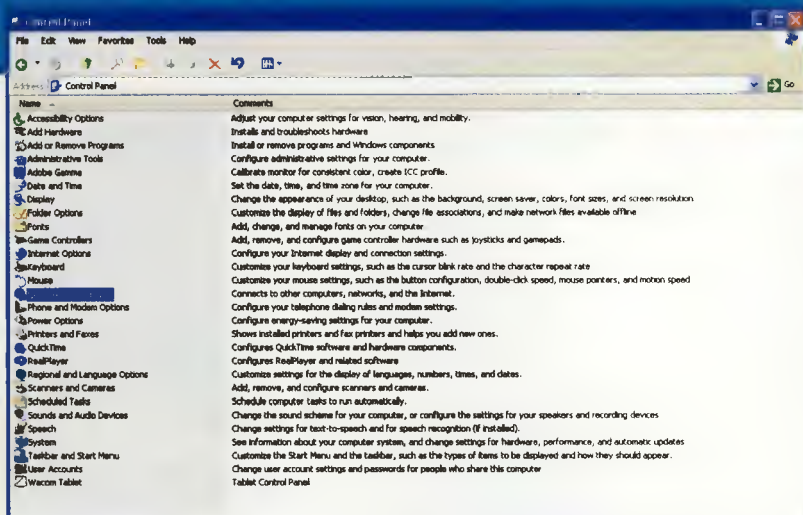
Shareware — www.artisoft.com

i.Share is a medium-level Internet sharing application. The server can be configured to share a connection to both a corporate intranet and the Internet simultaneously and transparently to several computers. Clients select which to connect to. During installation, a window pops up prompting you to enter some Internet connection settings before installing the software. The wizard guides you through setting up each protocol that you would like to share. Dial-on-demand is supported, so the server machine will automatically dial a connection to the Internet if one is not already present when a client machine requests data.

FreeProxy 2.2.3

Freeware — www.alphalink.com.au/~mgrgr

FreeProxy is a freeware program that tunnels HTTP and other TCP traffic through to a proxy server on an ISP. It isn't a true proxy application like many other full-featured applications available, but it does enable the simple sharing of a connection between multiple computers. Through using another computer's proxy server, FreeProxy only has to channel requests for information to the remote machine. The main screen lets you define Ports, RAS options, calendars, a URL filter and trace data, and also contains a button to start or stop the proxy. Future versions are expected to include a provision to connect to the Internet without the use of an external proxy, which will greatly enhance its usefulness.



► Open the Network Connections window to get started.

Panel, then double-clicking Network Connections. You can also right-click on the My Network Places icon on your desktop and select Properties.

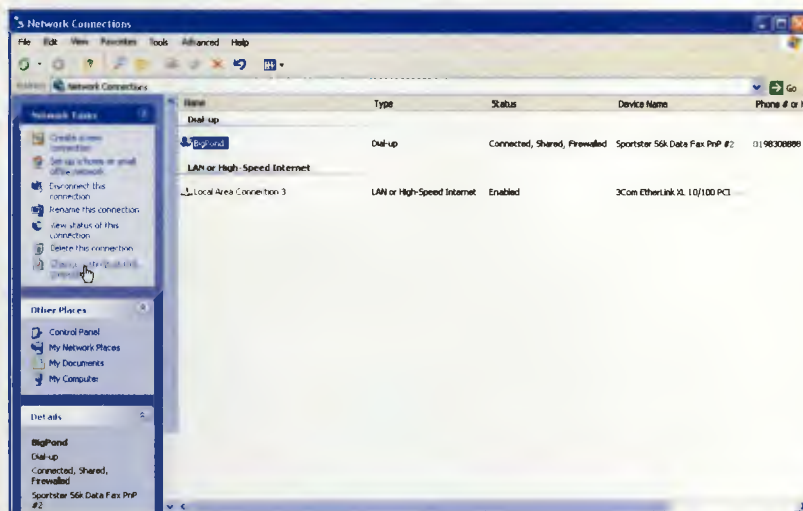
Step 2 The Network Connections window will list all the network adaptors that are installed on your computer. If you have your hardware correctly configured, you should see at least one network card that leads to your network, and a modem or NIC that connects to the Internet. Make sure that the devices you are going to use to share your Internet connection are enabled.

Step 3 Select the dialup adaptor or the NIC that is connected to your cable

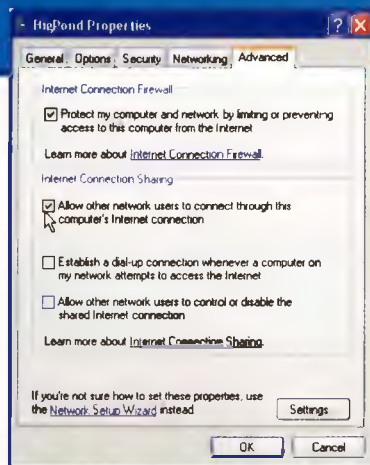
modem, and then, under the Network Tasks sidebar, click Change Settings of this Connection to access the settings window. You can also access this pane by right-clicking on the dialup adaptor and selecting Properties.

Step 4 Click on the Advanced tab to bring up the Internet Connection Sharing window, and tick the box entitled "Allow other network users to connect through this computer's Internet connection". This is the core of Windows XP's Internet connection sharing capabilities.

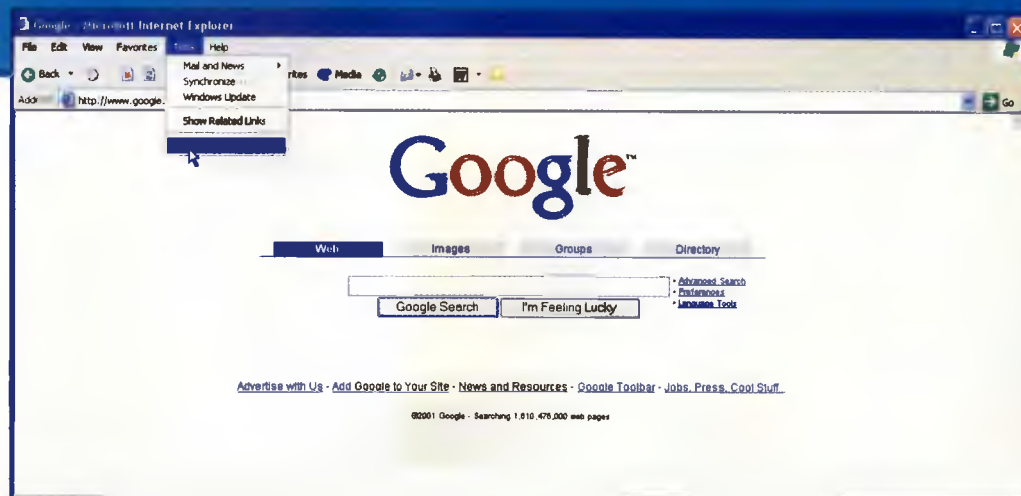
Step 5 If you are using a dialup connection, it is possible to configure the computer so that it will automatically



► Click Change Settings of this Connection to access the settings window.



► This window is the core of Windows XP's Internet connection sharing.



► You can access the client machine's settings from within Internet Explorer.

dial a connection to the Internet if any computer on the network requests data from a network connection. If you want to enable this feature, select the "Allow other network users to control or disable the shared Internet connection" box.

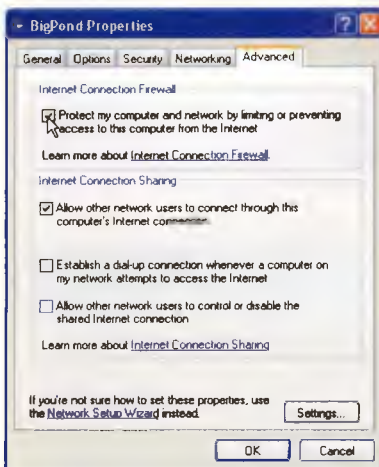
Step 6 Under the Home Networking connection setting under Internet Connection Sharing, select the adaptor that connects your host computer to the other computers on the network. This will enable the client computers to share your connection with the host. After rebooting your host computer, it will be ready to share the connection with any client machines.

Step 7 The system for setting up client machines to share a connection under Windows XP differs slightly from previous versions of Windows, in that you can access all the settings that require modification from within Internet Explorer. After opening Internet Explorer, click on the Tools menu and select Internet Options.

Step 8 In the "Dial-up and Virtual Private Network settings" section under the Connections tab, make sure that the box labelled "Never dial a connection" is selected. Access the proxy and automatic configuration settings for your LAN by clicking on LAN Settings under the "Local Area Network (LAN) settings" heading at the bottom.

Step 9 Under Automatic Configuration, make sure that "Use automatic configuration script" and "Automatically detect settings" are not ticked. As you are not using a proxy server, clear the box labelled "Use a proxy server for your LAN" under the "Proxy server" heading.

Step 10 As a basic firewall is provided under Windows XP, it is prudent to use it to protect the other computers that are connected to your network. Under the Network Connections Control Panel, right-click on the adaptor that connects to the Internet and choose Properties. Click on Advanced and select Internet Connection Firewall. If you run the firewall software on your host computer, all client machines will be protected under the umbrella of the host. ■



► Running a firewall on the host computer protects all the computers on the network.

602 Pro LAN Suite

Shareware — www.software602.com

As its name implies, 602 Pro LAN Suite is a massive, full-featured server capable of acting as a proxy for HTTP/HTTP-FTP/HTTPS, FTP, SOCKS, Telnet and RealAudio. It can be configured as an SMTP server, or it can be set to use the server of your Internet provider to forward mail. Although Pro LAN Suite doesn't contain a news server of its own, access to your host's NNTP server is provided via the proxy. An IP filter is included, enabling you to restrict access to certain sites, and a detailed log is generated to help you keep track of your users' browsing. A powerful built-in firewall, as well as mailing and fax services, add to the list of useful features, but most impressive is Pro LAN Suite's WWW server which has support for running CGI scripts. Priced at US\$199.95 for a full registration, Pro LAN Suite could be a touch bloated for home use, but it is extremely powerful and efficient.

NetProxy 3.62

Shareware — www.grok.co.uk/netproxy

Another full-featured proxy server with a clear layout and outstanding context-sensitive help is Grok Software's NetProxy. This is a caching HTTP, FTP, RealPlayer, SOCKS, Telnet, DHCP or DNS server and POP3 gateway. Port mapping in either TCP or UDP is also supported (so you can configure ports for ICQ, SMTP, NNTP and IRC). A rules-based firewall and WWW filter is included, enabling you to restrict access to certain sites, along with a time-based restriction option, meaning that you can disable access during certain times of the day, or even days of the week. Access logging is provided in text files, and you can even download a log analysis tool from NetProxy's Web site to help you analyse the data that is being transferred over your network and monitor for usage patterns.

MATT OVERINGTON Before he began working with APC, Matt lost hours of his life and handfuls of his hair attempting to make PCs talk to each other. He can be reached at moverington@acp.com.au.



LINUX



WITH ASHTON MILLS

WINDOWS ONTO LINUX

LINUX PROGRAMS ON A WINDOWS DESKTOP? FIND OUT HOW TO HAVE THE BEST OF BOTH WORLDS.

Last month's column, you learned how to run applications from one machine and display them on another, and discovered how to run entire desktops this way.

This month, take it one step further and investigate how to add Windows machines to the equation — yes, you can run Linux programs on your Windows desktop! Or, as we shall examine later, you can use the technology behind X to run full, unemulated Windows and Linux on the same machine at the same time. You really can have the best of both worlds, without having to switch between operating systems.

WORKING WITH WINDOWS

Plenty of people use both Linux and Windows, even if the latter is only used to play games. There are three ways of running Linux and Windows on the same machine — dual-booting, emulation and interpretation. The first is, of course, the art of installing Linux and Windows on a machine and then booting between the two. This is great, but you can only use one at a time. Sometimes you need just one Windows application, and it's a hassle to reboot.

This is where emulation comes in. VMWare and Win4Lin are two very powerful and popular commercial products that allow you to run Windows on top of Linux. While these programs allow you to run Windows almost in its full glory, they do have limitations. VMWare is relatively slow compared to running Windows natively on the desktop, and although Win4Lin provides Windows under Linux at full speed, it's limited to Windows versions up to and including Windows 98SE. Additionally, neither product can guarantee full application compatibility, and they don't support a full Windows feature set.

You can also try an interpreter. WINE is an incredible feat of programming, but is far from being complete. It does, however, allow you to run Windows programs without having to overload your system by running Windows itself.

But if you have a spare machine, the most efficient solution is to run one operating system on each box, but display both through a single machine — two operating systems with two full-screen desktops running simultaneously side by side. Now that's multitasking!

X allows you to do this. Your Linux box will happily send its display to another machine. Once Linux is installed, you don't need anything connected to the Linux box but a power cord and a network cable — no need for monitor, keyboard or mouse. Anything you can

do in front of a Linux box, you can do remotely over a network (even OpenGL applications). An old box running Linux makes a great MP3 playback component for your stereo system, controlled WinAmp-style from the comfort of your PC. It's an easy way to try Linux without touching your main system, and puts old hardware to good use.

So what do you need? Just a simple home network and a spare machine. Linux goes further with hardware than Windows, so even an aging Pentium is fine if it has at least 32MB of RAM (remember, you still need enough memory to run a GUI, even if it is going to display remotely). If you plan to use the machine as your main operating system, despite displaying through your Windows box, you'll obviously need a good machine.

It's a pity the reverse isn't also possible — streaming a Windows desktop to a Linux machine. However, Windows does support this kind of function *between* Windows 2000 or XP-based machines, via its Terminal Server software (the client has been renamed Remote Desktop in XP). Mind you, the Windows interface wasn't designed to operate over a network.

Although add-on components such as Terminal Server and Norton's PCAnywhere go a long way to making this possible, it's very much like forcing a square peg into a round hole. It gets the job done, but at nowhere near the functionality or speed that X provides. Most importantly of all, Microsoft hasn't written a Terminal

Screenshots

Screenshots for this month's column are available at apcmag.com.

Services client for Linux. And with no source code available, it's unlikely one will be written in the near future.

Which leads us to the last key component you will need for merging operating systems — a Windows-based X server.

NOBLE NEIGHBOURS

There are three major Windows-based X Window servers, each of which provides almost all the functionality of X11 that you find under Linux. But like most Windows software, they're not free.

On this month's cover CD set you'll find trial versions of two of them — StarNet Communications' X-Win32 and LabF's WinaXe, as well as a special offer for WinaXe. X-Win32 doesn't offer many add-on utilities, but is relatively inexpensive at US\$125 (\$242). WinaXe is cheaper at US\$100 (\$193), performs flawlessly, and is the easiest to use. For these reasons, we'll cover WinaXe here.

With your choice of Linux distribution installed on a second machine (be sure to install a variety of window managers to experiment with, and make sure the telnet server is enabled), hook it up to the network and you're ready to begin.

Install WinaXe on your Windows box and run Xsettings.

Got a wheel mouse? Toggle it on. Want to use a higher colour depth? Set it to 16 or 24-bit, or Auto to match the depth of your Linux desktop (which you set during install). Lastly, click Enable Animation and Forced Backing Store — the last in particular helps with performance. Make sure Window Mode List is set to Multiple.

Click OK to save your settings and then run Xsession to start the X server. You should see "Xsession" in your taskbar, but no visible program onscreen. This is as it should be (see last month's column for the distinction between servers and clients).

Now for the fun stuff. Telnet into your Linux box and export the DISPLAY variable:

```
export DISPLAY=[machine IP or  
hostname]
```

Then run a program — gnome-terminal, gimp, netscape, xmms, xcdroast — whatever you like. Notice how the window manager is Windows? Nothing quite as strange as seeing the Linux kernel configuration program bordered by a Windows XP theme!

To check the capabilities and current screen settings of the X server, run xdpinfo. This is an easy way to find out what extensions are supported by your display.

Now to get a full-screen desktop running. Right-click on X-Session in the taskbar and navigate to XServer Settings. Switch from Multiple to Full Screen and then enable XDMCP (see last month's column).

Here's where the magic starts for remote desktops and the X. XDMCP, or the X Display Manager Control Protocol, is a secure protocol for XDM, the X Display Manager. XDM is a graphical login for X11 systems — you'll see something similar if you boot to a GUI when you finish installing Linux. The login screen you would have used in the past is an XDM clone such as KDM (KDE Display Manager) or GDM (Gnome Display Manager), which performs the same tasks as XDM — it restricts access to known users, and automatically loads the chosen desktop environment upon login. XDMCP is the key behind corporations, banks and universities which have hundreds of terminals (or thin client X servers) connected to a central machine.

Understandably, XDMCP access is disabled by default on Linux systems, otherwise your Linux box would happily hand out a graphical login screen to any machine connecting to ports 6000 to 6063. So first you must tell KDM or GDM to accept connections. If you're using Mandrake Linux and have both KDE and Gnome installed, KDM is the default display manager.

For KDM: edit /usr/share/config/kdm/kdmrc, scroll down to [Xdmcp], and change Enabled to True.

For GDM: edit /etc/X11/gdm/gdm.conf, scroll down to [xdmcp] and change Enable to True.

Under Xsettings for WinaXe, click on the Settings button next to "Enable XDMCP". You'll be presented with a few configuration options, but all the defaults are fine. All you need to do is enter the IP address of your Linux machine under "Connect Host:", then click OK. Now restart the X server.

If all went well, WinaXe should present a full-screen Linux desktop with KDM or GDM waiting patiently for you to log in. Unless you have a slow or congested network, you should be able to use your Linux desktop as fast as you normally would.

To switch desktops, Ctrl-Tab or Ctrl-Esc as you would using any other application. It's impressive enough to do this with two Linux machines, but being able to switch between a Windows desktop and a Linux desktop at the touch of a button, and being able to use two machines through the same interface, is even cooler.

Now that you have two machines hooked up via the network, you can also set up file sharing using Samba on Linux. Alternatively, WinaXe comes with a Windows-based NFS server as well, so you can take advantage of the speed NFS provides. And, of course, either machine can be configured as a gateway to the Internet through your cable or dialup connection (enable masquerading under Linux or Internet Connection Sharing under Windows). WinaXe also allows you to copy and paste between your two desktops.

With a little effort and the wonders of X11, you can take Linux with you wherever you go! ■

A SOUND IDEA

SOUND MAKES A BIG DIFFERENCE TO A MOVIE, BUT SOUNDTRACKS FOR HOME VIDEOS ARE OFTEN A LITTLE FLAT. FIND OUT HOW YOU CAN JAZZ UP YOUR HOME MOVIES.

If you've been exploring iMovie, you've no doubt noticed the collection of sound effects that comes with it, and may even have downloaded and installed some extra sounds from www.apple.com/imovie/freestuff. Now you can try using them to give your next project a lift.



► If you organise your sound files in a series of subfolders within the Sound Effects folder, iMovie will give you a hierarchical view of your sound effects collection.

There are two ways of organising your sound effects collection. The first — and most convenient — is to put the sound files into the iMovie/ Resources/Sound Effects folder. In there you can group them into themed subfolders such as Animals or People. This hierarchy will be preserved in the list of sounds displayed by iMovie's Audio panel, and you can click on the triangle next to a folder name to hide or reveal its contents.

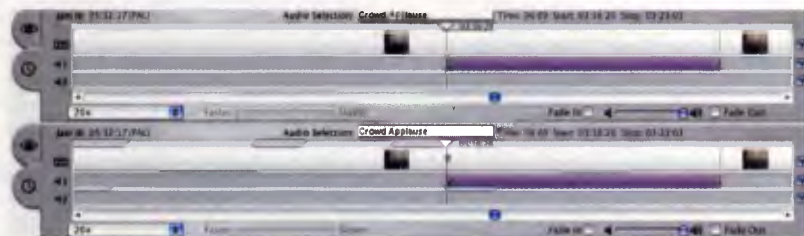
Adding one of these files to a movie is about as easy as it gets: all you do is drag a sound from the Audio panel on to the right spot on either of the two soundtracks in the timeline. To fine-tune the timing, drag the sound left or right and you'll see the corresponding video frame in the monitor window. You may need to adjust the scale of the timeline (using the pop-up menu

at the lower left) — if the scale is too compressed, you'll find it difficult to adjust the position to an exact frame. Otherwise, you can use the left and right arrow keys to nudge the sound one frame at a time.

The disadvantage of adding files to the Resources folder is that it makes iMovie launch more slowly. The faster your Mac, the less of a problem this is, but try to avoid adding sounds you're unlikely to use. Once your collection starts getting large, consider moving the ones you're keeping "in case they're useful one day" into a different folder, possibly located within the iMovie folder or your Documents folder. Once again, keep them organised thematically to make it easier to find the one you want.

To use a sound stored outside the Sound Effects folder, position the playhead exactly where you want the sound to start, then choose Import File from the File menu. Navigate to the file you want and click Import.

Whichever way you import your sounds, you should now play that portion of the movie to check that



► Once a sound effect is in exactly the right place (top image), use Lock Audio Clip at Playhead to attach it to the video clip. A pair of "pins" in the timeline indicate the lock (lower image).



- QuickTime Pro can import WAV files and export them in AIFF format for use with iMovie.

the sound really does tie in with the action. You may find it works better a few frames earlier or later than you calculated, so experiment by moving it along the timeline. One advantage of the import method over drag-and-drop is that you'll see the start and end of the sound on the timeline, making it easier to align the end of the sound with the end of a clip.

Once the sound is in exactly the right spot, you need to ensure it stays there. But where is "there"? You've placed the sound at a particular time in the movie, so if you subsequently make any changes to the part of the movie leading up to the sound (such as adding opening credits, or re-editing a clip more tightly), the sound effect will be heard too early or too late.

The answer is to "pin" the sound to the video. That way, the sound effect will stay in sync with the video regardless of subsequent edits. Position the playhead at the beginning of the sound effect and choose Lock Audio Clip at Playhead from the Advanced menu. You'll see a pair of pins in the timeline — one in the video track and another in the sound track — showing that the clips are locked together.

If you need to break the link between an audio clip and the video, click on the audio clip in the timeline, then choose Unlock Audio Clip from the Advanced menu. To remove a sound



- Replace the iTunes folder in OS X with an alias to the one you created in Mac OS 9 and you'll be able to play your favourite tracks from either operating system without wasting disk space.

from the movie, click on it in the timeline and then press the Delete key.

iMovie uses the AIFF format for sound files, but you might find some useful sounds in other formats — especially WAV — on Web sites or media collections on CD-ROM. If you have purchased a QuickTime Pro key, you can use QuickTime Player to convert from WAV to AIFF. Once you've opened the sound file, choose Export from the File menu. In the resulting dialog, choose Sound to AIFF from the Export pop-up menu, navigate to the destination folder and click Save.

Various sound tools will do this job, so check the capabilities of the software you already have. If you don't already have a suitable utility, SoundApp is free and handles more import formats than I've encountered anywhere else. Choose Convert from its File menu, select AIFF from the Format pop-up menu, select the input file and click Convert. In the subsequent dialog, choose the destination folder and click Save.

One last thing: don't forget to adjust the volume of each sound effect. Click once on the sound in the timeline and then move the volume slider at the lower right of the timeline to the left or right. Getting the levels right makes the sound more natural.

ITUNES

Mac OS 9 and Mac OS X share a common file system, so it is possible to access documents created in one from the other. However, navigating the hierarchy is a pain, and some applications expect to find files in particular places. A good example is iTunes: the OS 9 version expects to find your MP3 collection in your startup disk, while the OS X version assumes the tracks and related files will be in your home folder. You can fool iTunes for OS X into using the library you've already built in OS 9. You'll need to start up Mac OS X to follow these steps.

If you've already run iTunes in Mac OS X, move the iTunes folder from the Documents folder in your Home folder to the Trash. Then make an alias of your "old" iTunes folder (the one you've been using with Mac OS 9) by holding down the Command and Option keys and dragging it into your Documents folder in your Home folder. Now you'll be able to use your music library in either operating system without duplicating the files. A similar trick can be used with some other applications.

As a more general hint, putting an alias of your Mac OS 9 Documents folder in your Mac OS X Documents folder makes it easier to access old documents from the new operating system. ■

MIRACULOUS CONVERSIONS

CONVERT DIGITAL OR ANALOG VIDEO INTO MPEG-2 FOR HOLLYWOOD-QUALITY RESULTS.

Archiving video footage onto a CD or DVD has always been too complicated for many computer owners. The problems include the complexity of the software, the price of the hardware and the difficulty of finding a video capture and conversion system. Now all that has changed.

DVD is definitely becoming the "next big thing" for video storage and display. Software and hardware prices are falling rapidly, and more software encoding and authoring packages are becoming available.

But what if you don't have a capture card in your PC or notebook, or you want to capture analog video? The latter is particularly difficult as analog capture cards are scarce, especially now that the market has swung over to DV.

Luckily, a new product called USB Instant DVD, from ADS Technology (www.adstech.com), can convert video recorded on DV or analog camcorders or VCRs into MPEG-2 — the compression format that movie-grade DVDs are recorded in. And the best part is that it can be done on the fly, in real time.

Instant DVD is one of the easiest ways to capture analog video and audio directly into MPEG-2 or MPEG-1 if you want to make Video CDs (VCDs). You edit the footage and then prepare it for output with interactive programming and burn it to a DVD or CD.

All of this can be done for less than \$700. It works on virtually

any computer — the minimum requirements are an Intel Celeron 400MHz or AMD K6-400 with 64MB of RAM, a USB port and a duplex soundcard. The only additional requirement is a CD-R/RW or a DVD-R/RW drive for capturing and editing.

Instant DVD consists of a connection box, software drivers and applications, and most of the required cables. The connection box has both composite and S-Video connections, as well as mini-pin converters for the audio-in and audio-out from the PC's soundcard. The system is supplied with most of the cables for this, although S-Video cables were not supplied with the kit trialled for this column.

CONFIGURING YOUR SYSTEM

When the Instant DVD unit is plugged into a PC, Windows detects the device and the New Hardware wizard are activated to install the drivers. When I installed Instant DVD, Windows located the appropriate drivers on the USB

Instant DVD CD and loaded them without a problem.

The Instant DVD AutoRun installation menu appears, and you then load the five necessary software applications — the Instant DVD Capture and Export utility, PowerDVD 3.0, DirectX 8.0a, Ulead VideoStudio 5 video editing software and MyDVD 3.0 DVD authoring software. Also included on the installation disc is Sonic Foundry Sound Forge XP and Acid Style audio software. These can be loaded at this point or later on.

ENABLE DMA AND CHECK AUDIO

One of the most important steps during the software installation process is ensuring that the DMA is enabled on the PC's IDE hard drives. If this is not prompted during the software installation, make sure you enable it via the System menu in the Control Panel. Video editors should always check the DMA status on any hard drive that will be used to store video.

To ensure trouble-free video capture, whether DV or MPEG-2, it's best to allocate a hard disk to video and audio exclusively. This should be



► Make sure that the DMA is enabled on the PC's IDE hard drives and that Line-in is muted in the audio control panels to ensure trouble-free video and audio capture.



► **USB Instant DVD includes a helpful setup and operation wizard to guide users through the most difficult parts of video capture and output.**

free of application software and any system programs. The hard disk needs to be IDE or SCSI and should have a minimum spin speed of 7,200rpm. For IDE drives, the DMA must be enabled or the drive will lose audio and video data as it is being captured.

For more information on configuring your system for video capture visit www.microsoft.com/directx/dxm/help/ds/oview/Improving_Capture_Performance.htm.

If DMA is not enabled, video frames are dropped and the captured video appears jerky on playback. VGA resolution needs to be set at 1,024 x 768, which is the optimal screen resolution for viewing the system's DVD video, captured at 704 x 576.

The other important configuration to check in Windows is the Audio Mixer settings. Instant DVD relies on the computer's soundcard to record and play back the audio part of video recordings. The audio mixer needs to be configured correctly to ensure the audio is correctly captured. Open the Volume Control panel (Control Panel, Sound and Audio Devices, Audio, Volume) and click "Mute" on the Line-in Mixer.

Provided you have a full duplex soundcard (most good PC soundcards are duplex) you will still hear the audio when previewing or recording video with the Line-in muted. If the Line-in is not muted, you will hear an echo during recording and playback.

Once your system is configured, you are ready to start capturing video and converting it to DVD format. However, before doing this, it's important to consider your project goals to ensure that you choose the right format and system settings.

CAPTURING VIDEO

The Instant DVD kit includes a capture and playback application. This allows you to capture and export video quickly, without having to start the video editing or DVD authoring program.

Called "Capture Wizard", the program allows all the input and output settings to be configured, and the video and audio files to be captured and allocated to the folder in the drive you select.

Capture Wizard (or CapWiz) provides a large screen that previews the footage running from the camcorder or VCR. One of the preview screen's idiosyncrasies is that

UNDERSTANDING DIGITAL VIDEO COMPRESSION FORMATS

Before selecting a video compression format for recording video with Instant DVD, think about your final goal for the captured video. Capturing, editing and recording back to videotape requires a different format from putting an hour of video on a CD.

Choosing a video format that matches your output goal will save time and assures the best video quality (see "Which format to use?").

MPEG-1 file for VCD

A VCD is a movie copied onto a CD-ROM. The practical value of this format is that it can be read by CD-ROMs, VCD players or even DVD players.

The format used on a VCD is MPEG-1. To create a VCD file, you have to create a special WhiteBook standard MPEG-1 file that has very complex specifications. Fortunately, creating such a file is easy with Instant DVD and Ulead VideoStudio editing software. The capture template is customised to work with USB Instant Video to capture at 320 x 288 (PAL) at the correct bit-rate for VCD files. At the Finish step, all you need to do is select "Make Movie for VCD" and the edited video is saved in the correct VCD format using Smart Rendering technology.

You can capture in VCD/MPEG-1 format to create a VCD that will play in PCs and many home DVD players. Alternatively, you can copy the MPEG-1 file to a CD, and then play it back on any Windows PC that has a CD-ROM drive.

CREATING A VCD MOVIE DISC

Once you have created a movie in VCD format, you can use your CD-R/RW burner to copy the VCD movie to a CD. Most CD-R/RW drives ship with CD burning software that includes the ability to create VCD volumes. This software usually allows for disc spanning, just in case your movie is longer than the approximately 70-minute limit for MPEG-1 video on a conventional CD. Disc spanning allows you to spread your movie over several CDs.

SUPER VCD (SVCD)

SVCD is an enhancement of VCD. It is MPEG-2 video, but is recorded at a lower bit-rate and resolution than full broadcast resolution DVD: 480 x 576 PAL running at 25 frames per second with a bit-rate of 2.4Mbit/s. Up to 40 minutes of SVCD video can be recorded on a conventional CD-R/RW. You can play SVCD back on a Windows-based PC with a CD-ROM drive and an MPEG-2 playback codec (such as PowerDVD), and on some domestic DVD players.

WHICH FORMAT TO USE?

DESIRED OUTPUT	VIDEO FORMAT
Copy an hour of video onto a CD-R/RW disc	VCD (Video CD format/MPEG-1)
Capture video for video email or publishing on Net	VCD (MPEG-1)
Copy 30 to 40 minutes of better-quality video to CD	SVCD (Super Video CD)
Copy DVD to CD (20 minutes) — play back on PC	MPEG-2
Capture, edit and record back to videotape	DVD (MPEG-2)
Capture and copy DVD-quality movie to DVD disk	DVD (MPEG-2)



► The Instant DVD VideoCap window.

the image lags behind the footage streaming from the player by about two seconds. This is to be expected, as the video and audio are being compressed into MPEG-2.

Knowing that there is a delay is fine, because you can compensate when clicking the record button. You should always give yourself five seconds before the in-point and at least five seconds after the end-point when capturing raw footage. Finetuning can easily be done when editing the footage. It's always better to have too much footage to work with than too little; if there's too little, you'll have to start recapturing the clip.

Capturing MPEG footage to the PC's hard disk is a simple matter of clicking the red record button located among the other transport buttons at the



► Ulead VideoStudio 5 offers the ability to edit the captured MPEG video and add transitions, titles, filters and effects.

bottom of the screen. CapWiz also offers the option of directly launching the MyDVD authoring software and the Ulead VideoStudio editing program from tabs below the menubar.

EDITING MPEG VIDEO AND AUDIO

The version of Ulead's VideoStudio 5 that comes with Instant DVD is a full version — not a cut-down SE version. This is an ideal editing program for those new to video editing; however, you may find it limiting once you become more proficient. Plenty of other programs accept MPEG files from Instant DVD, so you may want to keep your re-editing options open down the track.

You can capture MPEG video output from USB Instant DVD directly into VideoStudio 5, rather than through CapWiz. The image appears in a central preview screen that is about one quarter the size of the preview screen in CapWiz — I know which

program I'd be capturing from! It's important to set the project and video format parameters before doing anything else in VideoStudio 5.

Once the video files have been captured, VideoStudio 5 allows you to edit them in a logical fashion. The storyboard lets you allocate the various captured clips in order, and transitions can easily be added between scenes.

The storyboard view can be switched over to timeline mode if the video and audio need to be trimmed or rearranged. Transitions can also be added in timeline mode: you just drag and drop them from the transitions bin to the appropriate point between scenes.

VideoStudio 5 then guides you through titling and adding soundtracks or narration to your video. Adding a music track can really make a difference, and MP3 music files can now be incorporated into your footage, as well as Wave and Midi files.

"Finish" renders the video created during the editing process for the output media you are recording to. For example say you author some MPEG-2 footage into a DVD and record to a DVD-R disc on a Pioneer DVR-A03 DVD recorder, and the output is PAL DVD 720 x 576 at 25 frames per second (fps). Your selection of output format is critical to ensure the best quality of the final production.

AUTHORING DVD

Few programs are as satisfying to play with as Sonic's MyDVD 3.0. It

Instant DVD

■ USB Instant DVD captures video from any analog video device and converts it into MPEG-2 or MPEG-1.

■ MPEG video files can be burnt directly to DVD-R/RW or CD-RW in real time (requires a Pentium 4 processor).

■ Video editing and DVD authoring software are included.

Bundled software

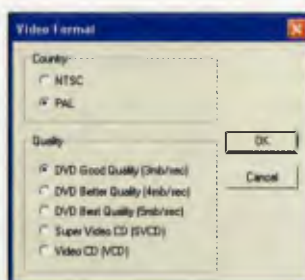
Ulead VideoStudio 5, Sonic MyDVD 3.0, Sonic Foundry Sound Forge XP, Sonic Foundry Acid Style 2.0, Cyberlink PowerDVD, Windows Media Player.

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Phone (02) 9975 2799

Price \$749

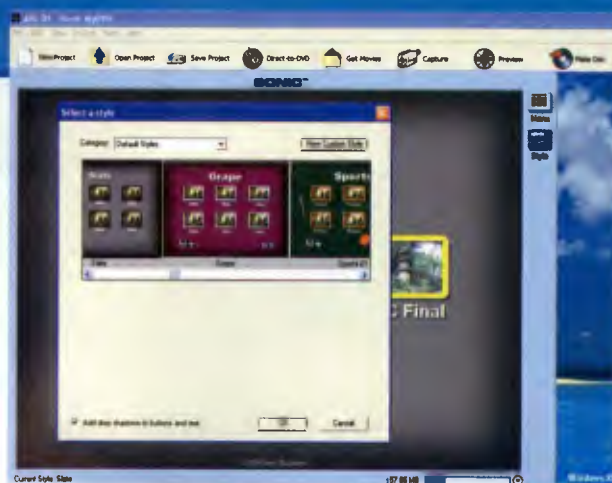
Online www.conexus.com.au



► It is important to set the bit-rate that you want to capture video at to ensure the output quality is ideal. If the desired output is to tape, aim for MPEG-2/DVD bit-rates of 5Mbits/s.



► Configuring the output settings, Ulead VideoStudio 5 depends on the media you will be recording video to.



► Sonic MyDVD authoring software allows a number of style templates to be used for the interactive front page of a DVD or VCD program.

is incredibly easy to use and the results, when played on a home DVD player, are nothing short of sensational.

Following the built-in MyDVD wizard makes the whole process so easy that even a first-time user will be churning out DVDs or CDs straightaway. The wizard provides three options:

- Recording direct to DVD
- Creating a new MyDVD project
- Opening a MyDVD project

There is also a tutorial that guides you through the software, explaining each of the authoring steps in more detail.

There are 26 default styles to choose from, ranging from twee to realistic and practical. By clicking the Get Movies button in the menu, a thumbnail image of the selected video appears in the button

on the screen. The number of buttons per page is determined by the preselected style, however, if additional buttons and video are added, the program automatically creates sub-pages.

Once all your menus have been created and the video added to the project, you can preview the program using a virtual DVD player remote. A handy gauge at the bottom of the screen keeps track of how many megabytes have been used in the project. This prevents you from loading beyond the limit of video that can be written to the CD or DVD.

The last step is obviously "Make Disc". After selecting your target media, click OK and the DVD or CD recorder begins the writing process. The results are excellent if you burn a DVD, but even VCD produces impressive results if your DVD player is compatible. ■



► Sonic MyDVD is a very simple to use authoring package and creates impressive video presentations. A DVD burner will allow the created discs to be played back on most home systems.

UNDERSTANDING DIGITAL VIDEO COMPRESSION FORMATS (CONTINUED)

MPEG-2 FOR DVD

The most exciting recent development in video compression standards is MPEG-2, which is used on DVDs, satellite television, digital cable TV and HDTV. MPEG-2 yields highly compressed files of extremely high quality.

File size is important to consider when using this format. NTSC MPEG-2 (DVD) files are 704 x 480 pixels, and PAL MPEG-2 (DVD) files are 704 x 576 pixels. This fairly large resolution means that the MPEG-2 file size is significantly bigger than MPEG-1. A two-hour movie uses up about 4GB of hard drive space.

Space considerations notwithstanding, MPEG-2 is an excellent choice for any type of movie. USB Instant DVD lets you capture directly from a camcorder to the MPEG-2 format then perform frame-accurate editing, and create a final movie in the same format. You can then use a special DVD authoring tool to create a DVD that can be played directly on a home DVD player or a DVD-ROM on your PC.

The MPEG-2 standard allows for bit-rates from 2Mbit/s up to 15Mbit/s. Since USB Instant DVD uses a standard USB port (which allows a bit-rate of 12Mbit/s), it has no trouble reliably achieving the system's video bit-rate of up to 5Mbit/s. Keep in mind that most Hollywood DVDs are produced at 4.5Mbit/s.

This allows up to 133 minutes of audio and video per DVD. In theory, the ability to capture MPEG-2 and create DVD movies at 5Mbit/s means you can produce video at the same high quality as Hollywood DVD movies.

DVD ON CD

When authored with the included MyDVD software, CD-R/RWs created with DVD on CD are automatically created with a software DVD player. This means that the disk can be played back on any Windows-based PC with a CD-ROM drive. When the disk is inserted, the software DVD player loads automatically.

This is a great way to distribute your short home movie, business presentation or product demo. With the power of DVD authoring, you can add buttons and menus to guide viewers through the presentation or movie.

PETER BLASINA is one of Australia's foremost experts on digital video and the editor of Videocamera Magazine. He can be contacted at videocamera@vcp.wow.aust.com.

EMAIL FORMS

UTILISE FLASH MOVIES TO CREATE INTERESTING EMAIL FORMS
FOR YOUR WEB SITE'S VISITORS.

Flash rocks Web forms, that's all there is to it. Flash movies can send and receive server data without the usual HTML "round tripping" that leaves users staring at

a blank page. With some Flash know-how and the right server-side script, you can build great-looking forms and provide a seamless user experience to boot.

A popular application of this technique is the email form, commonly used for soliciting public feedback or service enquiries. By using a form to get email from visitors you can avoid publishing your email address, which in turn prevents a lot of unwanted junk mail. Spam outfits routinely scour Web pages for email addresses, and will happily add yours to their lists!

Flash Player itself cannot send the mail, however; it needs to call on a separate server-side script to do the work. Users fill out the form and, with a little ActionScripting, the movie sends the details off to the server, where they are used to generate an email message.

FEATURED SITE: LARRIMAR.COM

Larrimar Tia is an award-winning Web designer based in the Philippines. His site, Larrimar.com, makes extensive use of (grey) Flash movies. In particular, it features an email form preconfigured to send messages to Larrimar's address.

The form is a Movie Clip that contains an assortment of text fields and a button for sending messages. Because Flash can send the form's contents to the server "behind the scenes", hitting the Submit button does not lead to another page.

Larrimar's site, although visually simple, makes good use of Flash to provide a smooth experience. Instead of jumping around from page to page, all of the elements are presented in a unified interface.

HOW TO MAKE IT

Constructing an email form in Flash is a simple process; all it takes is a few text fields and some scripting. You'll find the example files required for this technique on disc 1 of this month's CD set.

Not a server programmer?

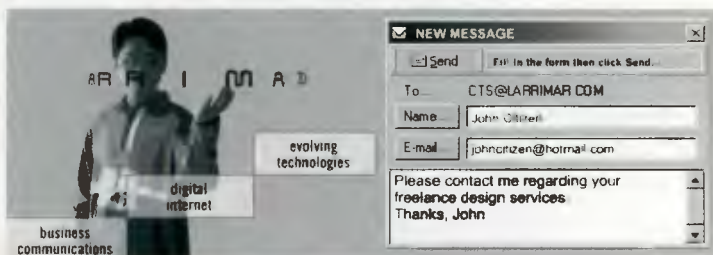
Don't be too concerned if you're not much of a server expert. There are plenty of great scripts you can download and use for free, whether you're interested in mail forms or in allowing users to submit information to a database. All you need to do is find out which server-side languages your host supports — common ones include PHP, Active Server Pages and Perl — and run a search in Google.com or your favourite search engine.

What is PHP?

PHP stands for "PHP: Hypertext Preprocessor", and started life in 1994 as a simple way of adding script elements to regular HTML pages.

Since that time, PHP has grown into a hugely popular and powerful platform for building dynamic Web applications. Because it's free and open source, PHP is a strong competitor to Microsoft's proprietary Active Server Pages (ASP) technology.

You might be wondering what all this has to do with Flash. PHP is one of the most popular "partner" technologies for Flash, because it is able to act as the server-side middleman, accessing databases, generating data and, in this case, sending email. It's such a popular combo that there are even books available explaining how to use Flash and PHP together.



► Larrimar.com's preconfigured email form.



► Figure 1: Ensure that the PHP is uploaded.

The first step is to make sure the server-side script is uploaded and ready to go (see Figure 1). Once you know where the script is located and what data it expects to receive, you can start on the Flash portion.

The mail script I've supplied is written in PHP 4, which is freely available and can be installed on Unix and Windows operating systems. If you're not sure whether PHP is installed on your server, contact the administrator for some advice or visit www.php.net for information.

Using an FTP program, upload SendMail.php to a directory on your Web server and, if necessary, set its permissions. Make a note of what the file's URL will be, since you'll need to specify that in your Flash movie.

The PHP script is fairly straightforward. It accepts a set of mail-related variables such as sender address, recipient address, subject and message body. Those variables are then packaged up and sent using the PHP mail() command.

<?

```
if ($Recipient && $Subject && $Message
&& $From) {
```

```
    $Body = "Name:\n". $Name .
```

```
    "\n\n";
```

```
    $Body .= "Message:\n" .
```

```
$Message . "\n\n";
```

```
    $Body .= "Email Address:\n" .
```

```
$Email . "\n\n";
```

```
    $Headers = "From: $From\
```

```
    r\n";
```



► Figure 2: An example of what the Flash movie email generator will look like when completed.

```
// Send the email
mail($Recipient, $Subject,
$Body, $Headers);

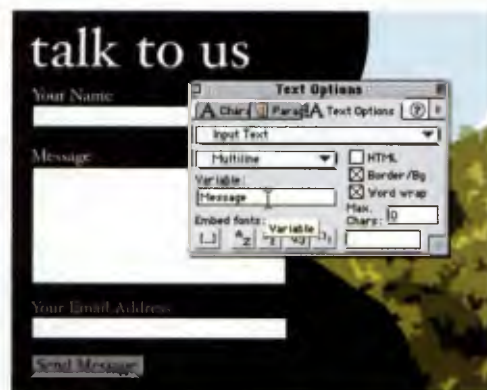
}

?>
```

With the PHP uploaded and ready to run, the next step is to create a Flash movie to act as the front end for the whole system.

To see a picture of the finished example, refer to figure 2. You'll notice that there are three form fields: one each for the user's name, message and return email address. These are all Input Fields, created with the Text Tool and the Text Options panel (see figure 3). By providing each field with a variable name, you can "link" them to an ActionScript variable, which is in turn sent to the SendMail.php script on the server.

The remaining variables are coded in ActionScript on the first frame of the Flash movie (see figure 4). If you operate multiple online forms that all point to the same email address, it can be useful to give them unique subject lines like "Customer Support Request" or "Web site feedback". That way you can set up filters or rules in your email client to help part the sea of correspondence.



► Figure 3: Use Text Options to create an input field for the front end.

TIPS

MAKE CLEAN FORMS

LoadVariables will send all the data from a particular Timeline, and that really does mean all. So if you're using 100 other variables for some other purpose, they'll get sent along as well. To make a "clean" form, put your text fields inside a Movie Clip created specially for them. That way, when you run a loadVariables from that Timeline, only the bare essentials will get sent along to the server.

WHEN TO USE XML

Flash's XML object is an alternative to loadVariables, but it's really only useful if you're sending and receiving data that has structure. The email form we're creating here has a flat list of variables, so XML in this case would be overkill. However, if you were sending data for several messages at once, XML might be a better choice.

USE DEBUG MOVIE

Sometimes, when you're building interactive applications like this, things will go awry. If data isn't showing up server-side, it might be because you're storing variables in the wrong Timeline or the loadVariables action is sending with the wrong method. You can help narrow down the problem using Debug Movie mode.

INCLUDE FONT OUTLINES

If you're doing anything fancy with your Input Fields like masking, colour transforms or rotation, make sure you include font outlines; otherwise, Flash won't have the information it needs to draw the typed characters and the fields will appear blank. The same applies to regular Dynamic Fields. The Text Options panel gives you the option of including the entire font set, or just a selection of characters.

LIMIT LENGTH

The Max Characters setting on an Input Field limits how much can be typed into that field. On an email form this isn't particularly useful, but it can come in handy with other types of forms. For instance, on a payment form you might want to limit the credit card number field to 16 characters, to help prevent user error. Or if the form was a sign-up page for a chat room or message board, you could limit the length of usernames to suit your system.



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Super Fast refurbished 4.3GB SCSI Hard Disk Drive. Formatted Error Free.



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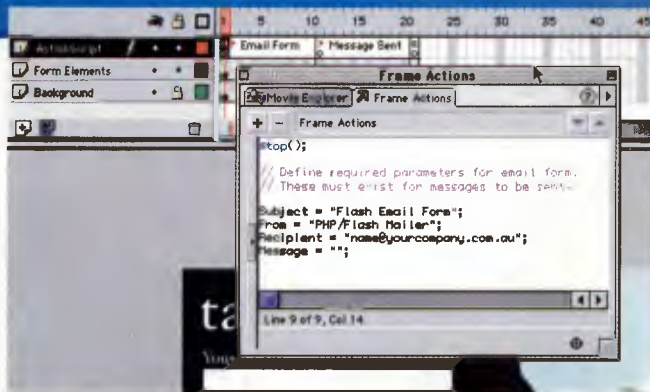


Figure 4: Hand-code the required variables for the first frame of the Flash movie.

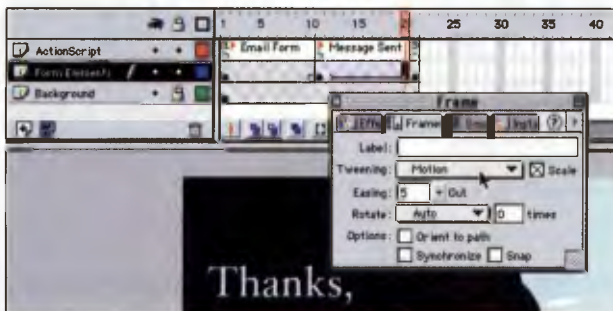


Figure 5: You can use a Motion Tween to thank your visitors.

With one half of the variables set by you, and the other half input by the user, all that remains is to send off all the data.

This is triggered by the "Send Message" button, and the ActionScript couldn't be easier.

```
on (release) {

    loadVariables("SendMail.php",
    _root, "POST");
    gotoAndPlay("Message
    Sent");

}
```

When the button is pressed and then released, the loadVariables action bundles up all the variables in the _root Timeline and posts them off to SendMail.php on your server.

POST OR GET

I've used POST in my example, but it may be necessary for you to make a choice between POST and GET to send data to the server. If you're using PHP for the back end it doesn't really matter, the script doesn't have to change. But here's the difference between the two:

■ **GET** attaches data to the end of the URL, as in SendMail.php? Name=Brian&Email=brian@isp.net.au. For security reasons, GET is limited to a total of around 250 characters. This restriction was added to prevent hackers adding malicious code to the end of a very long string that could be accidentally executed by browser or server software. Anything in excess of this limit will get chopped off.

■ **POST** sends data as part of the HTTP header, and has no length restriction. For HTML forms, POST is preferred because sensitive information like passwords won't show up in the Address bar like they do with GET.

FINAL TOUCHES

To finish off the example, I included a visual "send" confirmation in the form of a Thank You animation. The animation itself is a Motion Tween (see figure 5), with a stop action at the end of the main Timeline. To post the form on the Web, export to SWF and upload it along with the requisite HTML file. ■

TIPS

KEEP IT SMALL OR SIMPLE OR BOTH

In order to maximise Flash Player's performance, it pays to keep animated areas small, and vector artwork as simple as possible — with the fewest number of curves. The more curves in a graphic, the more work the computer has to do, pumping out pixels for onscreen display.

To cut the number of curves in your artwork, use the Modify, Optimize command. It can be gentle or ruthless, depending on the settings you choose, and can even do multiple passes for maximum results. It removes detail, so if the end result looks poor, just hit Undo.

If graphics must be kept at full fidelity, try to minimise their use in animation as they will impede performance.

PRELOAD WITH LOADMOVIE

Sometimes, if your grid is larger than a few sections, the SWF file you export will be pretty beefy. Rather than putting everything into one movie, you can make the section clips blank, like placeholders. Then create a separate 550 x 300 SWF for each section, with a preloader and the actual content. You can stream in each of the content movies with loadMovie() and specify the placeholders as Targets.

When loading a movie into a Target, make sure that the centre or registration point is set to the top left-hand corner. Use Modify, Transform, Edit Center to do this. Loaded movies are aligned with the registration point as their top-left, and not their centre as you might expect.

BE CREATIVE WITH MASKS

In my example I used a rectangular graphic in my mask layer, but you needn't do so. Try using the same technique with elliptical or irregular section shapes. To adapt the technique for vertical or horizontal motion, use a single row or column of sections underneath the mask.

Since the code is set up to work with any grid size, it doesn't matter if there is only one row or column. This is a good example of how to create flexible, reusable scripted interfaces.

CHOOSE THE RIGHT FRAME RATE

Frame rate is a crucial factor in Flash playback performance. By default, movies are set to 12fps, but for most projects you will want something faster. Remember, the frame rate you set will not necessarily be reflected in reality — Flash Player is designed to sacrifice frames at the expense of smooth-looking graphics.

Most modern systems can play a Flash movie at about 30 frames per second (fps), depending on the complexity of graphics, how much motion is involved and the amount of ActionScript used. The OS does make a difference, however, and for best cross-platform results, the magic numbers are: 15, 21, 31 and 60.

HOME-BRAND ACTIONS

CREATING A GENERIC ACTION CAN GIVE YOU THE OPTION OF ENTERING CERTAIN VALUES WHEN YOU USE THE ACTION, SO YOU DON'T HAVE TO MAKE DO WITH PRESET VALUES.

Last month, I introduced you to Photoshop actions. Actions are like macros (or scripts) and, as you now know, they are not really that difficult to create. The action you created should have demonstrated to you just how powerful and versatile they are, and how they can be used to automate tasks quickly and consistently.

This time, I want to show you how to create a more generic action, one that does not depend upon predefined values. After all, if someone created an action that adds a 10-pixel, black border to the designated image(s), it would be of very little use.

However, if the same action prompted you for the border width and colour, you might find it far more useful. I've also provided lots of tips and guidelines to help you as you create more of your own actions.

THINK OUTSIDE THE DIALOG BOX

Those of you who have used Photoshop prior to version 6 may remember that you could double-click on a layer in the Layers palette to access the Layer Properties dialog (which allowed you to rename the selected layer). In Photoshop 6, however, you have to press Alt and double-click to access the Layer Properties dialog box. Well, if you are going to have to reach for the keyboard anyway, why not simply assign a keyboard shortcut to this command? Once you get used to using this hotkey, you will wonder how you ever managed without it.

Before you begin recording an action, you should first consider the steps involved. For this example, you could record an action that renames a layer using the Layer Properties dialog, but doing that would mean layers always had the same name

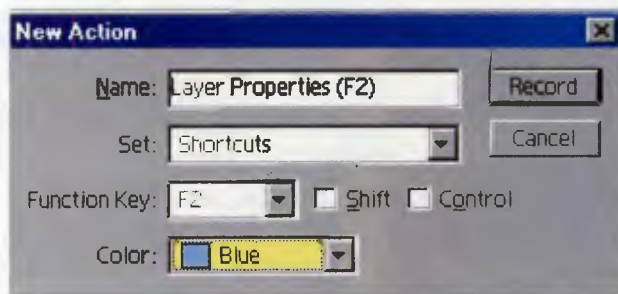
— not very useful. Turning on the Dialog Checkbox doesn't help matters either; when the action is played, the Layer Styles dialog is displayed. Instead, you're going to use the Insert Menu Item command. It will allow you to add a command without assigning any values to it.

To get your action started, make sure the Actions palette is visible by pressing F9 (Window, Show Actions). Add a new set by pressing the "Create new set" button or choose New Set from the Actions palette menu. Name the set "Shortcuts", or whatever you prefer. You can also Alt-click the New Set button to skip the dialog and simply accept the default name for the new set.

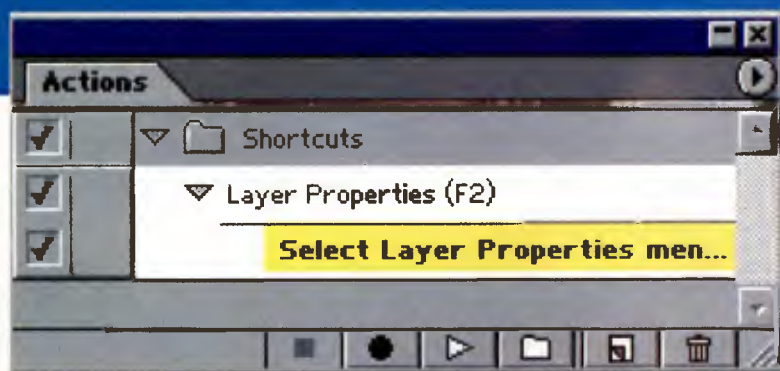
Create a new action by pressing the "Create new action" button or choose New Action from the palette menu. The New Action dialog appears. You can Alt-click the "Create new action" button to skip the dialog and simply accept the default name and settings for the new action.

Now, you need to decide which function key to assign to your action. Since the default key for rename in Windows is F2, we'll use that key in this example. Choose F2 from the Function Key drop-down.

Next, enter "Layer Properties (F2)" in the Name field. Function keys are only displayed as a part of an action's name when the Actions palette is in Button Mode, so I've included "F2" in the filename as a reminder of which key to press when the Actions palette is in List View Mode (its default mode).



► Figure 1: Enter the appropriate details in the New Action dialog and then press Record.



► Figure 2: An action step called "Select Layer Properties menu item" has been added to the action.

Leave Shortcuts as the designated Set, and if you want to select a colour, do so (although it will only appear in Button Mode).

Finally, press the Record button to begin recording (as in figure 1).

Now you need to choose Insert Menu Item from the Actions palette menu. Once the Insert Menu Item dialog appears, choose Layer, Layer Properties from the Photoshop menus, then press OK. Note that an action step called "Select Layer Properties menu item" has been added to the action (as in figure 2).

The Insert Menu Item command allows you to insert the selected menu item into the current action. Inserted items appear below the active action step. This command is available regardless of whether or not you are in record mode.

Two key uses for this command are: to insert commands that may otherwise be unavailable (or inaccessible) while in record mode (such as showing or hiding palettes); or to insert a command without values (to prompt the user for input when the action is played).

Stop recording by pressing the "Stop playing/recording" button (or choose Stop Recording from the palette menu).

For Mac users, when following the instructions in this article, just remember to substitute these keys:

Option for Alt
Command for Control

And you're done! Now try it out to make sure it's worked. Create a new document (File, New) and add several layers to it. You can quickly add layers by Alt-clicking on the "Create new layer" icon at the bottom of the Layers palette, or by pressing Ctrl-Alt-Shift-N.

Select a layer and press F2; the Layer Properties dialog should then appear. Name the layer and try it again on another layer. Pretty useful, don't you think? Well, despite the impressive number of keyboard shortcuts that are available in Photoshop, there are still a number of frequently used commands, such as Crop, Stroke, Contract and Expand Selection that don't have a hotkey associated with them. However, you can use the techniques explained here to create your own set of extended hotkeys.

It's important to remember that although the contents of the Actions palette are remembered from one session to another, they are not really "saved" until you save them using the Save Actions command in the Actions palette menu. In addition, you cannot save individual actions, only sets — if you want to save a single action, you must place it into its own set. Finally, in order for an action to appear in the Actions palette menu, it must be saved in the Photoshop 6.0\Presets\Photoshop Actions folder or subfolder.

For further reference, the completed action, as described above, can be found on disc 1 of this month's CD set. ■

TIPS

EDITING YOUR ACTIONS

- Drag and drop action steps to reorder them. This also works for actions and sets.
- Alt-drag a step to duplicate it. This also works for actions and sets.
- Double-click an action step to rerecord its associated values. Alternatively, you may choose Record Again from the Actions palette menu.
- Ctrl-click the "Play current action or command" button to play only the selected step. This is useful for debugging an action.
- Hold both the Ctrl and Alt keys when choosing Save Actions from the Actions palette menu to save all actions as a text file. This is very useful for reviewing or printing the contents of an action; however, the text file cannot be reloaded into Photoshop.
- Click on an action triangle to expand or collapse all steps within the action.

CREATING ACTIONS

KEEP THINGS GENERIC

- Try to build your actions using commands that do not use specific layer names (unless the layers are created by the action itself). For example, instead of choosing the previous or next layer by name, use the backward layer and forward layer keyboard shortcuts: Alt-[and Alt-]. Add the Shift key to select either the top or bottom layer.
- Use Percent as your units of measurement (where applicable) to avoid situations where specific transformations may be beyond the capabilities of another canvas size.
- Perform all your operations within a single canvas. Photoshop does not refer to documents by name, but as "next" or "previous" documents, which can cause problems if the number or order of documents changes.

REDUCE, REUSE AND RECYCLE

- Optimise your action wherever possible. The fewer steps there are, the faster the action will play and the easier it will be to debug if something goes wrong. For example, let's say you have an action with four steps that duplicate a layer, name it, and then change its blending mode and opacity. All of these operations could, instead, have been accomplished in one step using the Layer, New, Layer via Copy dialog box.
- If several steps need to be repeated, record them as a separate action, then have the first action refer to the second action as required (like an action subroutine).
- Examine other people's actions to learn new or better ways to accomplish certain techniques.

CONSIDERATION FOR OTHER USERS

- Include instructions (by using Stops) that tell the user what the action does and what is expected. If your action requires additional plug-ins, give the name and source of the plug-ins. You might also want to include your name and email address in case the user has problems or suggestions.
- Include a version number to distinguish different or updated copies of the action.
- Test your action in several different situations to ensure trouble-free operation.
- Preserve original layers whenever possible. If this is not possible, at least have the action duplicate the document as a first step.

FOR A GREAT SOURCE of free actions, visit Adobe's Action XChange Web site (www.actionxchange.com).

TREVOR MORRIS is a 2D/3D graphic artist and Web developer who specialises in Photoshop and Illustrator. He can be contacted at tmorris@fundy.net.

MORE POWER TO THE PIVOT TABLE

DIVE INTO THE WORLD OF PIVOT TABLES AND DISCOVER NEW DIMENSIONS IN YOUR DATA.

Excel's PivotTables are definitely for power users. They can slice and dice your data in ways that are quite wonderful to behold, helping you to visualise trends, pull together essential statistics, and break down your data by any number of factors.

Learn to make the most of PivotTables and you'll be able to take Excel far beyond the usual spreadsheet paradigm into a world of complex data analysis. That's a promise, and it's an easy one to keep.

If you've only ever used Excel to build up some budgets or carry out costings, you may never have explored its data analysis side. PivotTables

provide a powerful way to analyse data stored in spreadsheets, but they can achieve even more when connected to a database. If you have a lot of accounting data available in one of Excel's compatible formats, try hooking it up to a PivotTable. You may be surprised at what you see. PivotTables can also be used as a front-end to OLAP databases (see "Excel and OLAP", page 127), turning it into an exploratory tool as much as an analytical one.

Conceptually, PivotTables are right up there with the Rubik's cube, but they can have even more dimensions. They make it possible to look at data from almost any point of view. Rather than

simply pivoting the data onscreen in a two-dimensional way, the PivotTable can slide around it, rotating pertinent elements in and out — almost like shuffling and then resolving the Rubik's.

The data in the table on page 127 shows the beginning of a series of records that are typical of those stored in a database and processed through a PivotTable. You'll also find this file (Sample Data.xls) on disc 1 of this month's CD set.

To twist this data into a PivotTable, select a cell anywhere within the data and open the menu Data, PivotTable and PivotChart Report. The default options will work just fine, so click Finish to create the PivotTable template in a new worksheet.

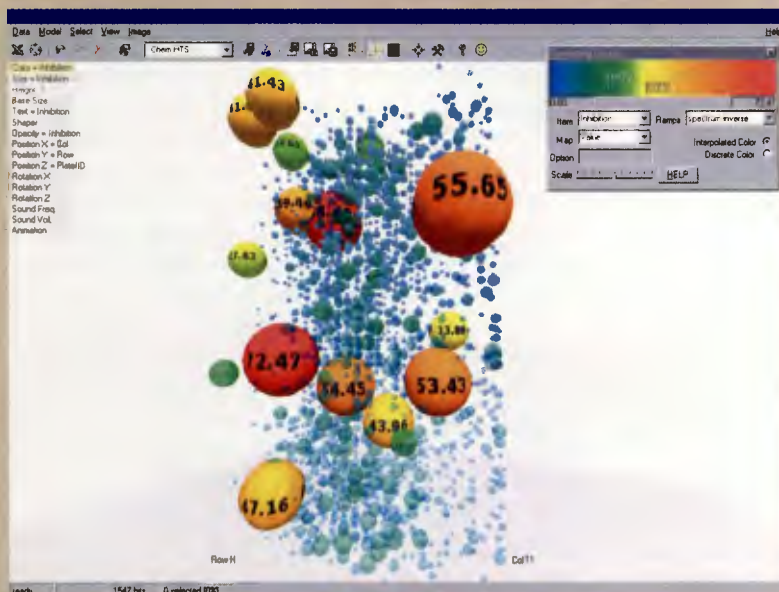
At first you won't see much, as in figure 1. The PivotTable can deliver a

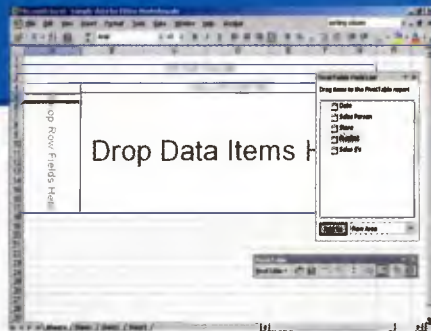
Data-Mining

PivotTables aren't the only way to create a new view of your Excel data. Remember that virtual interface from *The Lawnmower Man*? The character Job plucked at floating objects, zooming through a 3D landscape. It's the ultimate in data visualisation. The same can happen inside your spreadsheet, and the relationships between data and cells will never look the same.

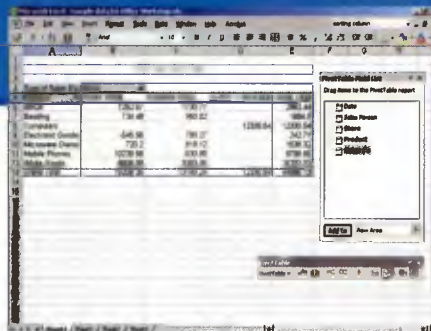
Miner3DExcel turns the data stored in flat cells into soaring towers. The publishers call it info-immersion; it's a way of exploring data by colour, size and, one day, touch. An evaluation version for Excel is on disc 1 of this month's CD set and is also available from www.miner3d.com/m3Dxl/download.html. There is also a version available for Access. If you use Windows 95 or Windows 98, you will need to install the OpenGL graphics drivers, available for download from www.opengl.org.

Miner3DExcel at work.

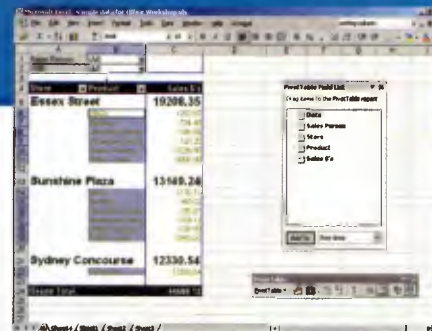




► Figure 1: The initial view won't have much detail.



► Figure 2: The table springs into action.



► Figure 3: Formatting your PivotTable.

multitude of views of the data, and it can't just guess what you'd like to see.

We want to view the sales figures broken down by category and store, so we'll make the columns Stores and the rows Products. We also want to be able to view sales on a certain date or all dates, and by any particular salesperson or all salespeople.

You can build the PivotTable by dragging the available fields from the field list palette to the various parts of the blank table. Start by clicking and dragging the Store field onto the column section of the table — just drag and drop it onto the prompt that reads "Drop Column Fields Here". You'll see each store line itself up across the top of the table with a Grand Total column automatically created on the far right.

Now drop the Product field onto "Drop Row Fields Here". Each Product is assigned its own row with another Grand Total down the bottom.

Finally, drag the "Sales \$'s" field into the section "Drop Data Items Here". Now the table should spring into action (see figure 2).

Click the drop-down menus beside the Store and Product headers to include certain items and locations.

Go back to the list of fields and add the Date and Sales Person fields to the section "Drop Page Fields Here". Page filters provide an overriding control

on what is included in the table. For example, click the drop-down menu and select Jane Jenkins to only view sales data generated by that person. Notice that you can also use the Date field to view all the data relating to a single day or all days, and this can be combined with the Sales Person selector to further filter the data included in the table.

A PivotChart Report is a chart based on PivotTable data. You can create these charts by selecting PivotChart Report in the first stage of the PivotTable Wizard, or you can first create a PivotTable that shows the data you need to chart and then simply click the Chart button in the toolbar. This will immediately create an editable PivotChart Report based on the existing table.

FORMATTING PIVOTTABLES

PivotTables provide data summaries that are ideal for reports and memos. Excel's AutoFormat feature works for most spreadsheets, but it does a better job of formatting PivotTables because it understands their structure, rather than needing to guess the purpose of each row and column. Click anywhere within the data section of the table and choose Format, AutoFormat. A range of formats will appear. Just select the one you like and click OK. If you don't like

the results, go back to AutoFormat and choose another. To manually adjust an aspect of the new format, such as all store names or product names, move the mouse up to the top edge of that header field (it will turn into a downward-facing arrow) and click your mouse. This selects only the cells linked to that field (see figure 3). ■

Excel and OLAP

Excel is more than adept at working with server-provided data. It can hook into a vast range of data sources and can extract almost anything you require, all via PivotTables and SQL queries. The procedure is straightforward: start the PivotTable Wizard, select the data source, choose the data range, drag the fields into the PivotTable and admire the results.

The problem with this approach is that it is often inefficient. You may need to trawl through millions of individual records stored in a relational database when distilling a relatively small amount of data, such as total sales by product per region. The worst way to go about this is to feed all of those records to Excel while waiting for it to analyse, filter and serve up the results. You'll get what you need, no doubt, but only after a long wait, and meanwhile you are more than likely placing an unreasonable load on the data server and network infrastructure.

Luckily, the inventor of the relational database, Ted Codd, came up with another method. He called it On-Line Analytical Processing, or OLAP. OLAP databases take many forms, but the easiest version to understand is one that sits between a relational database and an OLAP client application. The OLAP database holds precalculated summaries of the data stored in a relational database in multidimensional views or data cubes. Each time a record is updated, the OLAP database automatically updates each reference in its own cube. OLAP-enabled client applications such as Excel's PivotTable, and many executive information systems, can query the OLAP server and immediately extract the summarised data, making it easy to view summaries of massive databases in an ad hoc and exploratory manner.

You can only access OLAP data in Excel through the PivotTable, but this isn't exactly a limitation. If you have an OLAP database handy, such as those built by Cognos, Oracle or Microsoft's SQL Server 7, hook into it through the PivotTable and start exploring.

| TYPICAL SALES DATA | | | | |
|--------------------|--------------|----------------|-----------------|------------|
| DATE | SALESPERSON | STORE | PRODUCT | SALES COST |
| 12/01/2002 | John Dawson | Sunshine Plaza | Microwave ovens | \$19.69 |
| 12/01/2002 | John Dawson | Sunshine Plaza | BBQs | \$840.29 |
| 12/01/2002 | John Dawson | Sunshine Plaza | Whitegoods | \$6,498.11 |
| 12/01/2002 | Adrian Yarra | Essex Street | Microwave ovens | \$310.29 |
| 12/01/2002 | Adrian Yarra | Essex Street | BBQs | \$654.33 |
| 12/01/2002 | Jane Jenkins | Sunshine Plaza | Microwave ovens | \$798.43 |
| 12/01/2002 | Jane Jenkins | Sunshine Plaza | BBQs | \$890.48 |

STEPHEN O'BRIEN is the author of some two dozen computing books. He's worn the letters off several keyboards, and suspects he puts more hours into Word than he does into breathing. Between pages he has been known to check his email at sobrien@quorum.com.au.

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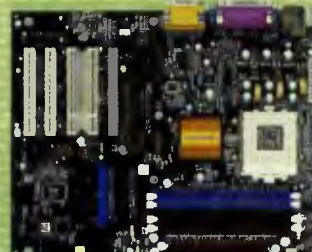
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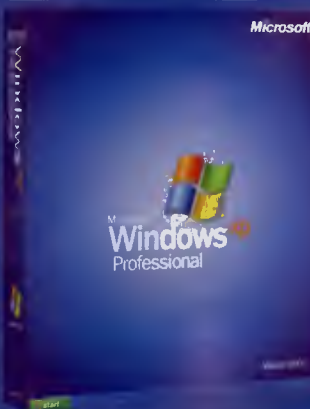
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| PORT REPLICATION | No | No | No |
| VIDEO RAM | 16 MB | 16 MB | 16MB |
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| PORT REPLICATOR | Optional | Optional | Optional |
| VIDEO RAM | 16MB Int | 16MB Int | 16MB Int |
| 56K v9.0 | Yes | Yes | Yes |
| 10/100 LAN | Yes | Yes | Yes |
| WIRELESS LAN | Antenna Only | Yes | Yes |
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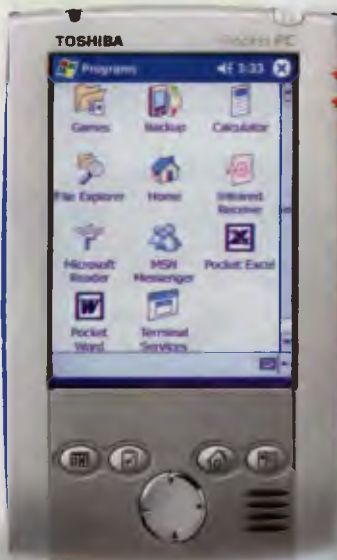
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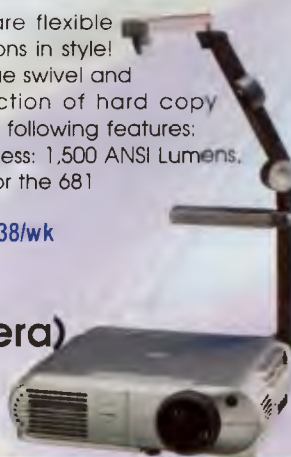
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 - Integrated Mini PCI 56K Modem and 10/100 Ethernet
 - Microsoft Windows 98/Me Dual Install
 - 1 Year Limited International Warranty, including pick-up in Australia*
- *Includes pick-up from anywhere within Australia, with a 48-hour service workshop turnaround repair time.

Evo Notebook N200

The Evo Notebook N200 offers extreme mobility and is feature rich. It is the lightest mini-notebook with all-day battery life.

(D1657)

\$3,995

Rent* \$37.33/wk



- Only 1.13kg light and under 1 inch thin
 - Mobile Intel Pentium III 700MHz Processor
 - 10.4" Colour TFT XGA display
 - 192MB SDRAM
 - 20GB Hard Disk Drive
 - Integrated Modem and 10/100 Ethernet
 - Microsoft Windows 2000
 - 1 Year Limited International Warranty, including pick-up in Australia*
- *Includes pick-up from anywhere within Australia, with a 48-hour service workshop turnaround repair time.

Ask
About...



- ☐ Extend to a total of 3 Years Return to Base
- ☐ Extend to a total of 5 Years Return to Base
- ☐ Upgrade Return to Base of Warranty Extension to On-Site

Save on
COMPAQ
server
bundles
refer to
website
link below

compaq.com.au/solutions/smallmedium

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The figures quoted are based on a per week basis over 3 years. T.A.P. Terms & Conditions apply.

Compaq Wireless LAN Series

Networking is an ideal solution for home or office when you need to share devices, files or an internet connection. Compaq's Wireless LAN Products make networking simple. You save time and money as you can install it yourself in just minutes. There is no need to fuss with wiring and you can add users to your network as you need to by simply adding extra client cards.

Strategically position the Hardware Access Points around the office and remain connected to the network as you move from one end of the office to another.

WL310 SOHO Gateway

Connect your home or home office to the web

(C3297) **\$739**

WL410 SMB Access Point

Bridge your wireless and ethernet networks

(C3298) **\$995**

WL510 Enterprise Access Point Extend those difficult to wire networks with this high performance wireless access point

(C3299) **\$1,845**



Install a PC Card (for notebooks), PCI Card (for desktop PC's) or a USB Card (notebooks or desktops) in each device connecting to the network

WL110 PC Card For notebooks + pocket PC

(C3294) **\$275**

WL210 PCI Card For desktops

(C3295) **\$374**

WL215 USB Client For USB desktops

(C3296) **\$319**

COMPAQ

Prices are subject to change. Check here for latest prices & products!!

Web
Direct

www.ht.com.au/cat/compaq

Business Servers For Any Budget

New Generation Compaq ProLiant Servers: In A Class Of Their Own!

ProLiant ML 330e

Small Business Budget Servers

Best Value Server For A Business!

- Delivers easy-to-manage file, print & Internet sharing
- Intel Pentium III 1000MHz processor with 133MHz front side bus
- 64MB ECC SD RAM (expandable to 2GB)
- 6 Available PCI Expansion Slots
- 20GB ATA/100 Hard Drive (expandable to 160GB)
- Include: Famous Insight Manager Software and SmartStart software suites
- Pre-failure warranty on Hard drives, processor and memory
- 3 Years Compaq Warranty on parts, 1 year on labour & on site (ask about our upgrades)

(D4229)

\$1,949

Rent* \$21.36/wk



ProLiant ML 330 Second Generation

The affordable Server for an Expanding Business!

- Delivers performance and data security at the best price.
- Ideal use with File/Print/Internet sharing, email & Small databases
- Dual processor capable Intel Pentium III 1133MHz with 133 MHz front side bus
- 128MB ECC SDRAM (expandable to 4GB)
- 5 Available PCI expansion slots (includes 4 x 64 bit PCI slots)
- Embedded Dual-channel Ultra ATA-100 with Integrated ATA RAID (ATA models) or Integrated, dual-channel Ultra3 SCSI (SCSI models)
- Tower to Rack conversion option kit available
- Includes Famous Insight Manager and SmartStart Software suites
- Pre-failure warranty on Hard drives, processor and memory
- 1 year Compaq warranty, parts, labour, on site (ask about our upgrades)

(D1753)

\$2,495

Rent* \$24.47/wk

ProLiant ML350 Second Generation

Business Work Group Server

The Workgroup server that will grow with your business!

- Delivers constant uptime and expandability for future growth.
- Ideal use with corporate workgroups and growing businesses that demand expandable, easy to own, rack and tower solutions
- Dual Processor capable Intel Pentium III 1133MHz with 133 MHz front side bus and 512K on-die cache
- 128MB ECC SDRAM (expandable to 4GB)
- 6 Available PCI expansion slots (includes 5 x 64 bit PCI slots)
- Integrated dual-channel Ultra3 SCSI
- 6x 1" Hot-plug Hard drive bays
- Redundant Power supply optional
- Tower to Rack conversion option kit available
- Includes Famous Insight Manager and SmartStart Software suites
- Pre-failure warranty on Hard-Drive, Processors and Memory
- 3 Year Compaq Warranty, parts, labour, on site

(D1754)

\$4,195

Rent* \$39.20/wk



ProLiant ML 370 Second Generation

Corporate Class Server

For unprecedented performance and availability!

When it comes to performance, availability and versatility, the new Compaq ProLiant ML370 G2 server redefines the two-way server class!

- Ensures constant uptime with Hot pluggable Hard drives, cooling fans, PCI slots (2), and also optional Hot Plug secondary power supply. The all-new Compaq online spare memory
- Dual Capable Pentium III 1266MHz Flip Chip PGA system with 512k on die cache and 133MHz FSB
- 256MB of 133MHz ECC registered SDRAM memory (expandable to 6GB)
- Integrated Dual Channel Ultra 3 SCSI Controller
- 6- 1" Hot PLug Hard drive bays, 6 - 64bit PCI slots

Includes:

- New Compaq Smartstart Version 5.1 and Compaq Insight Manager Software
- Pre-failure warranty on Hard drives, processor and memory
- 3 Year Compaq Warranty, parts, labour, on site

(D4042)

\$5,669

Rent* \$51.67/wk



COMPAQ Carepaq Services:

Installation
Carepaq's for:

- Server
- Printer
- Software Setup

Software Support Carepaq:

OS & Application
Telephone
Support

(10hrs x 5days)

5 Call Pack

(C5962)

\$1,045

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available

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site • 24 x7 on
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on Compaq
UPS* backup
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*Applies to all
Compaq UPS
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Offer Valid 01/11/
01 to 31/01/02.

PRICING AND SPECIFICATIONS MAY CHANGE. PLEASE REFER TO PAGE 2 FOR DETAILS.

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Australia-Wide

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9

Ipex- Largest Australian PC maker!



IPEX M3 SERIES DESKTOP

| | |
|-------------|-----------------|
| Form Factor | Slim Office |
| Processor | Intel® Celeron™ |
| | 1 GHz |
| HDD | 20 GB |
| RAM | 128 MB |
| LAN | Onboard |
| Video | Onboard |
| Sound | Onboard |
| CD-ROM | Yes |
| Modem | No |
| OS | Windows® XP Pro |
| Monitor | 15" CRT Monitor |
| Warranty | 3 Years RTB |
| Part # | (D6124) |

\$1,399

Rent* \$15.33/wk

With more than 18 successful years in the IT industry, Ipex is ranked in the top 20 IT companies and top 5 Desktop/Server manufacturers in Australia. Ipex offer systems to best suit your computing needs at a cost effective price.

The Ipex M3 Series Slim Office Desktop is ideal for business and corporate environments. Housed in a small form factor Slim Office Case and featuring Integrated LAN, Graphics and Audio onboard, this is the cost effective business PC.

IPEX CRT MONITORS

15"

(C5931)

\$339

17"

(C5932)

\$419



Ipex have a full range of Windows XP ready PC's. Take advantage of Microsoft's new Operating system with a new PC from Ipex. Choose from Windows XP Home or Professional Editions for home or business.

Everything you need in a PC for your home or small office. With Windows XP Home installed, take advantage of amazing graphics and sound capabilities. Enjoy the web and create CD's with a 56K Modem and CDRW as standard.

IPEX SOHO TOWER

| | | |
|-------------|-------------------|-------------------|
| Form Factor | T400 Tower | T400 Tower |
| Processor | Intel® Pentium® 4 | Intel® Pentium® 4 |
| | 1.8 GHz | 2.0 GHz |
| HDD | 20 GB | 40 GB |
| RAM | 128 MB | 256 MB RIMM |
| LAN | Onboard | 10/100 NIC |
| Video | 32MB | Ge force II MX |
| Sound | SB Live | SB Live |
| CD-ROM | Yes | DVD-ROM |
| Modem | 56K Internal | 56K Internal |
| OS | Windows® XP Hme | Windows® XP Hme |
| Monitor | 17" CRT Monitor | 17" CRT Monitor |
| Warranty | 3 Years RTB | 3 Years RTB |
| Part # | (D4159) | (D4157) |

\$2,199

\$2,699

Rent* \$24.10/wk

\$26.47/wk

IPEX LCD FLAT SCREEN MONITORS



IPEX 15" LCD

| | |
|---------|---------|
| Monitor | 15" LCD |
| Part # | (C9400) |

\$965

Rent* \$10.57 /wk



IPEX 17" LCD

| | |
|---------|---------|
| Monitor | 17" LCD |
| Part # | (C9401) |

\$1,749

Rent* \$19.17 /wk

Images for illustration purpose only

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Web Directwww.ht.com.au/cat/hp

hp omnibook XE3L & 500 Series

Whether you run your own business or work for a large enterprise, you need a notebook PC that helps you stay on top of it all. That's why hp created the **Omnibook XE3L** — a convenient, reliable notebook that comes with everything you need to do business and have a little fun, too. Top performance, Internet working, multimedia, and instant access to your favourite applications.

Omnibook 500 — fast networking computer all in one reliable package with versatility, 1.6kg carry weight and an expansion base with dual multibay capability.

hp omnibook XE3L Celeron

hp OmniBook XE3L Celeron 933 14.1" TFT 128MB, 10GB 24x, 56k/LAN

- Intel® Celeron 933MHz
- 128MB RAM
- 14.1-inch XGA TFT
- 10 GB
- 24X CD, S3 Savage/IX-8MB
- Built-in 56K modem
- Built-in LAN
- Win XP Home / XP Pro
- 1-year warranty.

Superb
performance
and value

• with Windows XP

**F3944H****Windows XP Home**

(D5997)

\$2,997

Rent* \$29.39/wk

F3944J**Windows XP Professional**

(D5998)

\$3,197

Rent* \$31.39/wk

**with
CD-ROM****Celeron 933Mhz 14.1 display**

hp omnibook 500 PIII

hp Omnibook 500 notebook with Intel Pentium III 700MHz processor

- 128MB RAM
- 20GB HDD
- 12.1" XGA TFT display
- 16-bit Soundblaster Pro compatible sound
- Built-in 56Kbps modem, 10/100 lan and 802.11b wireless networking
- Expansion Base has 2 module bays (1.44MB diskette drive module included)
- Warranty : 1 year return to HP

Ultra Light
notebook PC

expansion
base
Included

omnibook depicted
with docked multimedia
expansion base

**F3481W****Windows 98 Second Edition**

(D0211)

\$5,390

Rent* \$49.13/wk

F3481K**Windows 2000**

(D0210)

\$5,590

Rent* \$50.95/wk

very light 1.6kg Pentium III 700Mhz**Expansion base Included**Ask
About...

- ☐ Extend to a total of 3 Years Return to Base
- ☐ Extend to a total of 5 Years Return to Base
- ☐ Upgrade Return to Base of Warranty Extension to On-Site

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www.ht.com.au/cat/hp

hp networks & servers

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PLEASE NOTE THAT PRICES ARE SUBJECT TO CHANGE ON ALL PRODUCTS

hp procurve switch 2512 & 2524

9.6GBPS BACKPLANE & AUTO-MDIX • Lowest Price 10/100 Managed Switch • Provides a rich, layer 2 feature set • Includes 2 transceiver slots for upgrade to a gigabit • Auto MDIX on all 10/100 and 100/1000 ports • Lifetime warranty for as long as you own the product • Wire-speed performance on all ports • FREE HP TopTools Management Software included.



procurve switch 2512

(12 port managed switch)

(A9703) **\$1,553**



procurve switch 2524

(24 port managed switch)

(B0062) **\$1,965**

hp procurve switch 2312 & 2324

Ideal for low-cost, unmanaged 10/100 connectivity • Lowest Price 10/100 Switch • Includes 2 Built-in Gigabit transceiver slots • Brings 10/100/1000 solutions to the market • Media-flexible ports for uplinks and server connections • HP quality, functionality and performance • Plug and play solution



procurve switch 2312

(12 port managed switch)

(B0063) **\$933**



procurve switch 2324

(24 port managed switch)

(B0064) **\$1,347**

hp procurve switch modules

hp procurve switch 2124 Transceiver **NEW PRODUCT**
(D1512) **\$1,115**

hp procurve switch 2424M Gig Stack Kit
(78306) **\$426**

hp procurve Gigabit-SX Transceiver
(82140) **\$780**

hp procurve Gigabit-LX Transceiver
(82141) **\$2,050**

hp proCurve 100/1000-T Transceiver
(A9127) **\$895**

hp proCurve 100-FX SC Transceiver
(A9128) **\$715**

hp procurve switch 4108GL

The hp procurve switch 4108GL bundle is a high performance, Layer 2 modular switch, for high port-density needs at the edge of the network. The chassis bundle provides 72 half/full duplex, 10/100 autosensing ports, with hp auto MDIX, transceiver module for uplinks and 4 free module slots. In addition, the switch offers built-in management (including SNMP and RMON) and fast path technology for wire-speed switching.



(C5871)

\$15,320

Rent* \$141.30/wk

NEW PRODUCT

hp netserver tc2100

the server with the best price/performance value for small businesses

NEW

entry-level server at the price of a desktop PC

gives you server-grade power with a 1.13GHz Intel® Pentium® III processor, a 133MHz front side bus, and up to 1.5 GB of error-checking and -correcting (ECC) SDRAM memory • broader network operating system support • 3-year on-site warranty

P4649A

tc2100 with Pentium III 1.13GHz/133MHz. (D5981)
40 GB IDE hard disk drive

\$2,949

Rent* \$28.92/wk

Features:

- 128 MB registered ECC SDRAM
- flexible disk drive
- 48X max-speed IDE CD-ROM drive
- keyboard, and mouse.



HP ProCurve Switch 408
Unmanaged 8 port 10/100 switch in a compact sized package. This switch offers half/full duplex, 10/100 autosensing on every port. Warranty: Lifetime, Exchange Next Day (C9017) **\$405**

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12

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hp pocket pc

hp jornada 560 series

one of the lightest pocket PC's on the market

| technical specifications | hp jornada 560 series Pocket PC |
|--------------------------|---|
| processor | 206 MHz 32bit Intel(R) SA-1110 |
| display | 3.5 inch 16 bit colour TFT LCD with 65K Colours |
| user interface | pen-and-touch interface
handwriting recognition software |
| power | 14 Hour Continuous use removable Lithium - Polymer battery, and coin Battery back up. |
| input / output | serial port, AC input jack, stereo head phone jack |
| sound | audio speaker and microphone, voice recorder |
| dimensions | 132 x 76.5 x 17.2 mm |
| weight | 173g |

F1865A**hp jornada 565**

32 MB flash ROM

\$1,159

(D0845)

Rent* \$12.70/wk**F2915A****hp jornada 568**

64 MB flash ROM

\$1,337

(D0857)

Rent* \$14.65/wk**Ask About...**

- ☐ Extend to a total of 3 Years Return to Base
- ☐ Extend to a total of 5 Years Return to Base
- ☐ Upgrade Return to Base of Warranty Extension to On-Site

OLYMPUS

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Camedia Digital Cameras

CAMEDIA C-100

Affordable and easy to use

1.3 Megapixel CCD • Focus Free lens • 2x Digital tele-function • Motion JPEG image recording • Panorama function • Uses SmartMedia cards • USB AutoConnect interface for download.

**(C5866) \$458**

CAMEDIA C-700

Unbelievably compact 10x zoom

2.1 Megapixel CCD • 10x Optical zoom lens • 2.7x Digital zoom • Uses Smartmedia cards • USB AutoConnect • LCD viewfinder and monitor • Motion JPEG Image and Sound recording • Slide-Show and Picture Effects modes.

**(C5851) \$1,544**

CAMEDIA C-200ZOOM

Portable digital zoom

2.1 Megapixel CCD • 3x optical zoom • Uses SmartMedia cards • Easy arrow key operation • Motion JPEG • USB AutoConnect • Quick sequence shooting (Up to 1.8 frames per second).

**(D4208) \$918**

CAMEDIA C-40ZOOM

Pocket-sized digital zoom

4.0 Megapixel CCD • Bright 2.8x Optical zoom • Uses SmartMedia cards • Motion JPEG image and sound • Range of flash and creative controls • USB AutoConnect • Compact size (87 x 68.5 x 43.5 mm) • Ultra light weight.

**(D4207) \$1,795****Wine on-line?****vintagecellars.com.au**

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LCD Data Projector

VPLCS4

- 1000 ANSI Lumens
- SVGA Resolution
- Digital Keystone Correction
- Digital Zoom
- Screen Coverage: 40 to 150 inches
- Weight: approx. 2.4kg
- Size: 275(W) x 65(H) x 214(D) mm



(D5433) **\$3,699**

CD-R/RW Kit

24W/10RW/40R Memory Stick CDRW

- Two high speed removable Media drives in one
- Writes and Re-writes to Memory Stick and CD-R/RW Media
- Sony Buffer-Under-Run technology
- Recording software supplied



(C9879) **\$399**

AIT Back-Up Kit



Advanced
Intelligent
Tape

- 35-90GB, AIT-1A
- Back-Up Software for Mac & Windows supplied
- Includes cables and easy installation guide
- 3-year On-Site Exchange Warranty



External Drive Internal Drive
(C7478) **\$3,698** (C7480) **\$2,819**

DDS Back-Up Kit



Digital
Data
Storage

- 20-40GB, DDS-4
- Back-Up Software for Mac & Windows supplied
- Includes cables and easy installation guide
- 3-year On-Site Exchange Warranty



External Drive Internal Drive
(C6692) **\$2,587** (C6114) **\$2,010**

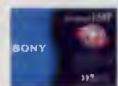
SONY DIGITAL MEDIA

DDS Data Media

DGD120P
4-8GB DDS-2
(13262)
\$14

DGD125P
12-24GB DDS-3
(66576)
\$29

DGD150P
20-40GB DDS-4
(88711)
\$65



AIT Data Media

SDX135C, 35-90GB
AIT-1 Tape with
64KB MIC
(B2626)
\$169

SDX250C, 50-130GB
AIT-2 Tape with
64KB MIC
(95749)
\$218



CPD-G420

Flat Display Trinitron Monitors

CPD-G520

FD Trinitron

- 19" FD Trinitron Display
- 0.24-0.25mm Aperture Grille Pitch
- 4 Way Powered USB Hub
- Dual Switchable Inputs (HD15 & BNC x 5)
- Compact, Low-Rise, Two-Tone Cabinet
- Maximum Resolution 1920 x 1440 @ 60Hz
- Sony 3-year Warranty



(B7964) **\$1,250**

FD Trinitron

- 21" FD Trinitron Display
- 0.24mm Aperture Grille Pitch
- 4 Way Powered USB Hub
- Dual Switchable Inputs (HD15 & BNC x 5)
- Compact, Low-Rise, Two-Tone Cabinet
- Maximum Resolution 2048 x 1536 @ 60Hz
- Sony 3-year Warranty



(B7966) **\$2,090**

DSC-P3

Memory Stick Digital Still Cyber-shot Camera

DSC-P5

DSC-P3 Cyber-shot Memory Stick Camera

- 2.8 Mega Pixel
- 3x Precision Digital Zoom
- AF illuminator
- MPEG Movie EX
- ISO Sensitivity
- 2x Burst Mode
- 1.5" LCD & View Finder
- Max Resolution (1920x1440)



Cyber-shot (D1555) **\$1,145**

DSC-P5 Cyber-shot Memory Stick Camera

- 3.2 Mega Pixel
- 3x Optical Zoom (6x Digital Zoom)
- Clipmotion
- Super HAD Technology
- MPEG Movie EX
- ISO Sensitivity
- 1.5" LCD & View Finder
- Max Resolution (2048x1536)



Cyber-shot (D3791) **\$1,559**

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14

New VAIO Model with Windows XP Home Edition

PCGFX990 Notebook

Pre-installed with Windows XP Home Edition

(D4414)

\$4,899

Rent* \$45.78/wk

Features

PCGFX990

- | | |
|----------------------------|-------------------------------|
| • Pentium® III 1GHz | • Internal 56kbps Modem |
| • 15" XGA Display | • Network interface |
| • Windows® XP Home Edition | • Sony Original Software |
| • CD-RW/DVD Drive | • i.LINK (IEEE1394) interface |
| • 128MB RAM | • 2x USB interfaces |
| • 20GB Hard Drive | • Video Out |

PCGFX900 Notebook

Pre-installed with Windows XP Home Edition

(D4415)

\$3,999

Rent* \$37.37/wk

Features

PCGFX900

- | | |
|----------------------------|-------------------------------|
| • Pentium® III 850MHz | • Internal 56kbps Modem |
| • 14.1" XGA Display | • Network interface |
| • Windows® XP Home Edition | • Sony Original Software |
| • CD-RW/DVD Drive | • i.LINK (IEEE1394) interface |
| • 128MB RAM | • 2x USB interfaces |
| • 15GB Hard Drive | • Video Out |

New models come with CD-RW & DVD Combo Drive



Image PCGR505AFT notebook

Software supplied with new notebooks:

- Adobe Photoshop Elements
- MovieShaker 3.2
- Symantec Norton AntiVirus 2002
- Intervideo WinDVD™ 3.1
- Adobe Acrobat Reader 5.0
- Apple Quicktime 5.0
- DVgate 2.4
- SonicStage 1.0
- PictureGear 5.1
- Smart Capture 4.2
- VisualFlow 2.1

Memory Stick

Sony's tiny Memory Stick lets you enjoy seamless recording, transfer, storage and playback of audiovisual and other data, through a wide range of Memory Stick compatible products.

8MB

(88647)

\$49

16MB

(86779)

\$69

32MB

(88654)

\$99

64MB

(88648)

\$169

128MB

(C5887)

\$329

PCGR505AFT Notebook

Pre-installed with Windows XP Home Edition

(D4416)

\$5,199

Rent* \$47.39/wk

Features

PCGR505AFT

- | | |
|----------------------------|--------------------------|
| • Pentium® III 850MHz | • Internal 56kbps Modem |
| • 12.1" XGA Display | • Network interface |
| • Windows® XP Home Edition | • Sony Original Software |
| • Docking Station Included | • MG Memory Stick Slot |
| • CD-RW/DVD Drive | • USB interfaces |
| • 256MB RAM | • i.LINK (IEEE1394) |
| • 30GB Hard Drive | • interface |

PCGR505AGT Notebook

Pre-installed with Windows XP Home Edition

(D4417)

\$4,899

Rent* \$45.78/wk

Features

PCGR505AGT

- | | |
|----------------------------|--------------------------|
| • Pentium® III 750MHz | • Internal 56kbps Modem |
| • 12.1" XGA Display | • Network interface |
| • Windows® XP Home Edition | • Sony Original Software |
| • Docking Station Included | • MG Memory Stick Slot |
| • CD-RW/DVD Drive | • USB interfaces |
| • 128MB RAM | • i.LINK (IEEE1394) |
| • 20GB Hard Drive | • interface |

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Fly Buys
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quoted are
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per week
basis over 3
years. T.A.P.
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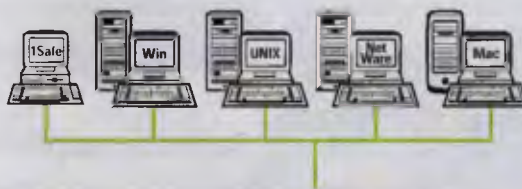
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16



MaxAttach NAS 4100 File Server

- Windows, UNIX/Linux, NetWare and Macintosh file sharing
- NAS Powered by Windows operating system
- RAID Levels 0,1, and 5 data protection
- ADS/NDS/NIS Support
- SCSI port for Back-up
- No per-client licence
- Up to 320 GB in 1U
- NAS4100 320GB has Gigabit Ethernet
- NAS4100 160GB has 10/100 Ethernet



FILE SHARING:

MaxAttach NAS 4100 can be used for simultaneous multi-platform file sharing. File locking ensures that any file can be updated by only one client at a time. Clients and servers can be backed up to the MaxAttach file server using the included iSafe for MaxAttach software.



The new MaxAttach NAS 4100 file server delivers seamless integration. With a Windows Powered operating system, the NAS 4100 is network storage that you can manage with the tools you have now. From backup support, to device management, to directory services, the NAS 4100 is the new network storage solution that you already know how to use.



- 400GB in 1U height
- PSM snapshot capability
- RAID 5, 1, and 0 data protection
- Active Directory support
- External SCSI port for local tape back-up
- Gigabit & dual 10/100 Ethernet ports
- Windows, UNIX/Linux, NetWare and Macintosh file sharing
- NAS Powered by Windows operating system

NEW

NAS 4100 160GB

(B9954) **\$5,925**

Rent* \$54.00 /wk

NAS 4100 320GB

(B9955) **\$9,495**

Rent* \$81.07 /wk

NAS 4300 400GB

(C9243) **\$11,795**

Rent* \$96.62 /wk

NAS 4300 640GB

(D1510) **\$Call** on request

Next Generation Backup Solutions



Quantum

QUANTUM DLT TAPE DRIVES

| | | | |
|---------|-----------------------------------|---------|-----------------|
| Quantum | DLT1 economy tape Internal Drives | (88037) | \$2,890 |
| Quantum | DLT1 economy tape External Drives | (88038) | \$3,420 |
| Quantum | DLT8000/S Internal 40/80GB | (82501) | \$6,175 |
| Quantum | DLT8000/ST External 40/80GB | (82502) | \$6,490 |
| Quantum | SDLT220/S Internal 110/220GB | (B9821) | \$11,495 |
| Quantum | SDLT220/ST External 110/220GB | (B9823) | \$11,950 |

LTO ULTRIUM



LTO Ultrium Tape Drive

- 100GB Native, and 200GB compressed capacity per tape.
- 16 Mb/Sec sustained, that is 57 GB/Hour!
- Ultra wide LVD SCSI interface and includes Data tape and cleaning tape.
- Compatible with most common backup software.
- Includes one year on site warranty for a limited time"

LTO Ultrium Tape Drive (Internal Drive)

(D1509) **\$10,350**

LTO Ultrium Tape Drive (External Drive)

(D1508) **\$10,995**



Update EXPERT is a utility that allows Network managers to keep their NT and certain Microsoft product hotfixes and service packs up to date by analysing which service packs are installed on the NT servers or workstations. It also facilitates locating, downloading and installing the latest packs locally or remotely from a central location.

75 Server Base System Licence!

Update EXPERT (C4999) **\$2,670**



Exabyte



VXA

VXA 1 TAPE DRIVE

- 33 GB native, 66 GB Compressed (using V17 tape)
- 3-6MB sec sustained, that's 21.6GB/Hr
- SCSI-LVD & new Firewire models available in white & translucent
- Variable speed operation matches data throughput to your computer
- LINUX and Apple Mac approved.
- Compatible with most backup software

VXA 1 TAPE DRIVE (Internal) (C1847) **\$2,170**

VXA 1 TAPE DRIVE (External) (C1915) **\$2,570**

VXA 1 TAPE DRIVE (External Firewire Kit) (B1856) **\$2,995**



*Super DLT and LTO models also available

DLT1 AUTOLOADER

- 400 GB native, 800 GB compressed capacity
- DLT1 Single Tape Drive included
- 10 tape capacity
- Overland DLT reliability
- LVD 68 pin SCSI interface
- Includes 1 data tape and cable
- 20 GB/Hr throughput.
- Optional On-site warranty.



(A0476)

\$10,999

media

DLT Tape Media IIIXT
15/30GB Tape

(68362) **\$80**

DLT Tape IV
Media 20/80GB

(71231) **\$155**

DLT Cleaning Tapes

(97851) **\$90**

Super DLT Media
110/220 GB

(B9825) **\$330**

Exatape 112 - 8mm

(C1976) **\$12**

Exatape 160 - 8mm

(C1980) **\$22**

Exatape AME - 125m

(C1986) **\$105**

Exatape AME- 170m

(77600) **\$130**

Exatape AME 2-150m

(C1989) **\$180**

Exatape 8mm
Cleaning Tape

(C1982) **\$29**

Exatape AME 18c
Cleaning Tape

(C1983) **\$36**

Exabyte VXA1 -
V6 12/24 GB

(91103) **\$89**

Exabyte VXA1 -
V10 20/40 GB

(C3945) **\$129**

Exabyte VXA1 -
V17 33/66 GB

(91105) **\$197**

Exabyte VXA1 -
1m Cleaning Tape

(91104) **\$102**

LTO Ultrium
100/200 GB Tape

(D1500) **\$298**

Extend your Network-Wireless & Gigabit Solutions

NEW

Wireless Gateway

Perfect for Home or Small business

Network is as mobile as the people who use them. The Intel® Wireless Gateway combines an access point, router and firewall into one low-cost device. It manages communications from multiple PCs and other networked devices, and helps you save money by sharing one DSL or cable modem among 32 users. (This product is Wi-Fi* certified.)



Wireless Accesspoint (D0118) **\$1,589**

Wireless PC Card (D0119) **\$329**

Wireless PCI Carrier (D0121) **\$165**

Gigabit Ethernet

The Future Is Now!

Take advantage of Intel's products to help you implement Gigabit technology, and get more bandwidth for less. Network demand is out growing current infrastructure. Fight bottlenecks with industry leading performance - 1000Mbps of throughput over copper or fibre connection for greater distance with less noise.

NEW

Gigabit for Desk

Intel® PRO 1000T Desktop Adapter

- Give your high-performance desktops the bandwidth they need
- Flexible 10/100/1000 connectivity for easy migration
- Designed for multi-tasking with today's large files and demanding applications

(D5958) **\$199**

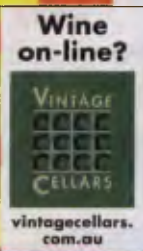
NEW LOW PRICE

Gigabit for Server

Intel® PRO/1000 XT Server Adapter

Featuring advanced auto-sensing and auto-negotiating technology, IT managers can deploy adapters into existing Category 5 Ethernet (10 Mbps) or Fast Ethernet (100 Mbps) networks. As the network infrastructure evolves, the adapters will automatically adjust performance to higher Gigabit Ethernet (1000 Mbps) speeds without additional configuration.

(D5959) **\$369**



JAN

18

Power Back Up = Power Protection

APC Surge Arrest-PNote Pro®



Surge
Arrest 5 Strip
(A0098)

\$56

An APC SurgeArrest is your guarantee that your hardware and valuable electronics are protected regardless of lightning strikes and everyday unexpected power surges. SurgeArrest also offers the best protection from line noise which can cause glitches and errors in electronic operations and computer data.

PNote Pro
(99592)

\$46

The SurgeArrest Notebook Pro Surge Protector provides the mobile notebook professional with advanced AC and telephone line protection. The unique, in-line design creates a compact, lightweight surge protector that is truly portable and appropriate for use in any country throughout the world. With built-in Excess Current Detection, the Notebook Pro warns you against potential modem damage. A Velcro mounting strap and 6 ft. telephone cord eliminate the need to carry any additional accessories.



Ask
About...



APC Back Ups Pro® for Workstations

Smart battery backup & high performance surge suppression for Windows 95 & NT PCs

- PowerChute® Plus software lets your UPS shut down your applications gracefully in the event of an extended power failure
- Additional outlet for protection of printers
- Audible alarms
- Phone/modem protection
- User replaceable, hot swappable batteries



APC Back-UPS Pro **280si** (76636) **\$259**

APC Back-UPS Pro **420si** (76637) **\$349**

APC Back-UPS Pro **650si** (76638) **\$485**

APC Smart-UPS Rack Mounts® for Servers

Smart-UPS 700, 1000, and 1400 2U Rack Mounts

Network power protection to increase availability of your system. APC Smart-UPS 2U Rackmount features include longer runtime to keep your system safe and a 2U design to save your valuable rack space by 30%. Hot swapping batteries is also now faster and easier with the replacement battery chassis tray.



APC Smart-UPS **2u700VA** (99595) **\$678**

APC Smart-UPS **2u1000VA** (99596) **\$969**

APC Smart-UPS **2u1400VA** (99597) **\$1,445**

Back-
Ups for
PC's!

350va
(C5446)

\$169

500EI
(C5878)

\$245

650va
(56231)

\$279



APC
Symmetra
Power Array

8kVA, exp. to
16kVA
(71087)

\$13,529

So good we
use it
ourselves!



NETGEAR™

Prices are subject to change. Check here for latest prices & products!!

Web
Direct

www.ht.com.au/cat/netgear

Everybody's Connecting

Shared Internet Access

NETGEAR have a comprehensive range of Cable/DSL routers. All products offer standard shared internet access with NAT Firewall security and easy installation via web based configuration and DHCP.

The products are plug and play and are ideal for connection to either Cable/DSL or satellite broadband services.

www.netgear.com.au offers specific installation information on both Telstra and Optus services.



RT 311 Cable/DSL router with
1 10/100 port
(97719) **\$299**



RP114 Cable/DSL router with
integrated 4 port 10/100 switch and
ability to control web content
(C5592) **\$375**

R0318 Cable/DSL Security router
with integrated 8 port 10/100 switch
(C4896) **\$510**

FR318 Cable/DSL firewall
router with integrated 8 port 10/100
switch upgrade to vpn end point
(D1526) **\$748**

FV318 Cable/DSL VPN Router
includes 5 VPN end points, firewall and
integrated 8 port 10/100 switch
(C2298) **\$1,663**

Wireless Connectivity

The NETGEAR wireless family means that you never have to be tied down by your cabling again. Whether you are looking to add to your wired Ethernet network or set up a new network these standards based 802.11b products allow you to share network resources without the need for cabling. These plug and play devices are easy to install are WiFi certified and come with WEP encryption.



MA301
PCI Adapter
Cradle

(B9927)
\$98



MA401
PCMCIA
Adapter

(C8117)
\$297



ME102
Wireless
Access Point

(B9929)
\$619



MA 101
Wireless
USB
Adapter

(C7110)
\$315



MR 314
Cable/DSL router with
integrated 4 port 10/
100 switch & built in
access point

(C5223)
\$639

Printer Servers

The NETGEAR print servers enable you to connect your printers to a network for sharing amongst multiple PC's



PS 110 10/100 Mbps Print Server, 2
parallel ports
(67226) **\$265**

PS 113 10/100 Mbps Print Server, 3
parallel ports
(A3287) **\$405**

Enquire
for
pricing
on
Netgear
10 Mbps
hubs.



Web
Direct

See
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(at top of page)
for
more
products
and
latest
info!

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**HARRIS
TECHNOLOGY™**

PRICING AND SPECIFICATIONS MAY CHANGE. PLEASE REFER TO PAGE 2 FOR DETAILS.



FINANCE METHODS
ARE SUBJECT TO
APPROVAL.



NETGEAR™

Prices are subject to change. Check here for latest prices & products!!

Web
Direct

www.ht.com.au/cat/netgear

Everybody's Connecting

Modular Switches

NETGEAR has introduced a new range of modular switches that allow high performance non blocking 10/100 performance out of the box with the ability to add 2 high performance Gigabit modules now or at a later date. Fibre or copper modules are available and can be mixed. As with all NETGEAR products their installation is automatic.

FS726 24 Port 10/100, 2 Module slots



(D0873)

\$1,485

FS750 48 Port 10/100, 2 Module slots



(D0874)

\$2,495

AG711T

Copper module

(D0921)

\$729

AG711F

Fibre module

(D0924)

\$1,049

Gigabit Solutions

These high performance Gigabit switches provides either fibre or copper backbone connectivity for power workgroups, data centres and server farms. No additional modules are required - each product is ready to install straight from the box.

GA 302T 32 bit PCI gigabit network card

(D4118)

\$195



GA 302T

GS516T 16 port 10/100/1000 Mbps Gigabit Switch.

(D5960)

\$5,199^{RRP}

GA 622T 32/64 bit PCI gigabit network card

(B9943)

\$355

GS 504T 4 port 100/1000 (Copper)

(A1375)

\$2,449

FS 509T 1Port 10/100BT Switch w/1 1000BT Uplink

(D1004)

\$889

FS 518T 2 port 100/1000 with 16 ports 10/100

(A1374)

\$2,135

GS524T 24 port 10/100/1000 Mbps Gigabit Switch

(D5961)

\$6,899^{RRP}

GS 508T 8 port 100/1000 gigabit switch

(B9916)

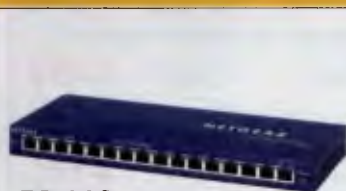
\$2,899

FS 517TS 1 port 100/1000 and 16 port 10/100 stackable switch (copper)

(C2299)

\$1,649

10/100 Switching Solutions



FS 116

FS 105 5 port 10/100 autosensing switch

(84722)

\$159

FS 108 8 port 10/100 autosensing switch

(70905)

\$249

FS 116 16 port 10/100 autosensing switch

(A5347)

\$512

FS 516 16 port 10/100 auto-sensing and internal PSU/Vista

(60522)

\$859

FS 524 24 port 10/100 switch

(77549)

\$979

FS 524S 24 port 10/100 switch - stackable

(B6540)

\$1,639

NETGEAR Starter Kits

Everything you need to start networking right away. Within a few minutes you will be able to share files and printer, exchange emails, play interactive games and share access to the internet.



SB 105 5-Port/10Mb Hub 2x10/100, PCI, cables, internet sharing software

(A3293)

\$129

FB 105 5-Port/10/100M Switch 2x10/100, PCI, cables, internet sharing software

(A3935)

\$229

Network Cards

FA 311 Ethernet Adapter 10/100 PCI (A1372)

\$42

FA 312 10/100 Wake on Lan Ethernet Adapter (A1373)

\$45

FA 411 10/100 Mbps PC Card (Without dongle)

(B9944)

\$129

FA511 10/100 CardBus PC Card (without dongle) (D4112)

\$139

Ask About...



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21

Call 1800 787 638 for 24 hour 7 days a week service support

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Web: www.ht.com.au

Fax: 1300 13 6666

Email: sales@ht.com.au

HARRIS TECHNOLOGY™ Technology Centre
at Kmart Broadway-Sydney

Intelligent KVM and USB Products

SERVERLINK KVM SWITCHES

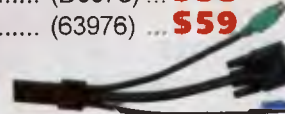
The ServerLink Infinity range of Auto KVM switches allow you to control multiple PCs or network servers with one monitor, keyboard and mouse. All ServerLink KVM switches feature **On-Screen-Display** and keyboard & mouse emulation to guarantee error free switching and flawless booting.


ServerLink Infinity Range
SERVERLINK
 INFINITY

| | | | |
|-----------------|---|-------------|----------------|
| SL-221 | 2 port ServerLink KVM for PS/2 only | (B3047) ... | \$270 |
| SL-221-P | 2 port ServerLink KVM inc. 2 x 2m PS/2 cables | (B3048) ... | \$317 |
| SL-421 | 4 port ServerLink KVM for PS/2 only | (A9890) ... | \$349 |
| SL-421-P | 4 port ServerLink KVM inc. 4 x 2m PS/2 cables | (B2759) ... | \$440 |
| SL-821 | 8 port ServerLink KVM for PS/2 only | (97888) ... | \$979 |
| SL-821-P | 8 port ServerLink KVM inc. 8 x 2m PS/2 cables | (97889) ... | \$1,159 |
| SL-1621 | 16 port ServerLink KVM for PS/2 only | (97890) ... | \$1,672 |
| SL-1621-P | 16 port ServerLink KVM inc. 16 x 2m PS/2 cables | (97891) ... | \$2,019 |
| SL-CKP-02 | 2m 3-in-1 Comp. to ServerLink cable for PS/2 | (63972) ... | \$27 |
| SL-CKP-03 | 3m 3-in-1 Comp. to ServerLink cable for PS/2 | (D0973) ... | \$38 |
| SL-CKP-05 | 5m 3-in-1 Comp. to ServerLink cable for PS/2 | (63976) ... | \$59 |

CYBEX AUTOVIEW 200KVM SWITCH

Control up to 8 computers simultaneously from 2 locations. The second user can be up to 150 metres away using standard Cat5 UTP cabling.



| | | | |
|----------------|---|-------------|----------------|
| AV200R-8 | 2 user 8 port KVM switch for PS/2 & AT/Serial | (97950) ... | \$2,965 |
| RMK-33 | 19" Rack mount kit for AV200R-8 | (77284) ... | \$55 |
| CIFCA-4 | 1.2m 3-in-1 Comp. to AutoView cable for PS/2 | (B6728) ... | \$84 |
| CIFCA-8 | 2.6m 3-in-1 Comp. to AutoView cable for PS/2 | (B9703) ... | \$120 |
| CIFCA-15 | 5m 3-in-1 Comp. to AutoView cable for PS/2 | (B5488) ... | \$196 |

COMSOL USB KVM SWITCH

Control 4 USB computers from a single USB keyboard, USB mouse and VGA monitor. This USB KVM switch also allows the 4 computers to share 2 USB peripherals such as printers, scanners or storage devices



| | | | |
|------------------|---|-------------|--------------|
| UKS-401 | 4 port USB KVM switch with 2 port USB Hub | (D0970) ... | \$299 |
| USB-AB-02 | 2m Computer to KVM cable for USB | (69356) ... | \$7 |
| USB-AB-05 | 5m Computer to KVM cable for USB | (69358) ... | \$12 |
| H15MF-02-H | 2m Computer to KVM cable for VGA | (57884) ... | \$19 |
| H15MF-05-H | 5m Computer to KVM cable for VGA | (60022) ... | \$33 |

COMSOL USB HUBS

| | | | |
|--------------|----------------------|-------------|--------------|
| UH-201 | 2 port USB Hub | (82695) ... | \$47 |
| UH-401 | 4 port USB Hub | (82696) ... | \$61 |
| UH-701 | 7 port USB Hub | (82697) ... | \$105 |



COMSOL USB CONVERTERS

| | | | |
|----------------|---|-------------|--------------|
| UPC-100 | USB to IEEE1284 printer converter | (82692) ... | \$55 |
| UMC-100 | USB to RS232 9 pin serial converter | (80782) ... | \$70 |
| UEC-100 | USB to 10/100 Ethernet converter | (82594) ... | \$145 |
| UKMC-100 | USB to PS/2 KB & Mouse converter | (B0557) ... | \$70 |
| USC-100 | USB to SCSI 2 (HPD50M) converter | (D0937) ... | \$180 |
| UPCI-100 | 2 port USB PCI controller card | (B4493) ... | \$44 |


3 YEAR WARRANTY
FULL RANGE OF CYBEX PRODUCTS AVAILABLE!

Fast Delivery Australia-Wide
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Dream Deals Just For You

Network Attached Storage

NAS-1000 Disk Server Series – Add gigabytes of accessible, fast, hard-disk-drive storage to your network, without the cost, space, set-up and maintenance hassles of a fully-fledged file server. Features 20, 40, 60 & 80 Gigabyte models. In-built network print server, 10/100Mbps Fast Ethernet auto-sensing LAN connection, simple configuration and administration, full User, Share & File Level Security.



NETWORK ATTACHED STORAGE

Purchase any of NetComm's 20GB, 40GB or 60GB **Network Attached Storage** solutions and receive an extra 20GB ***FREE!**

20GB (D0848) **\$1,299**

40GB (D0849) **\$1,749**

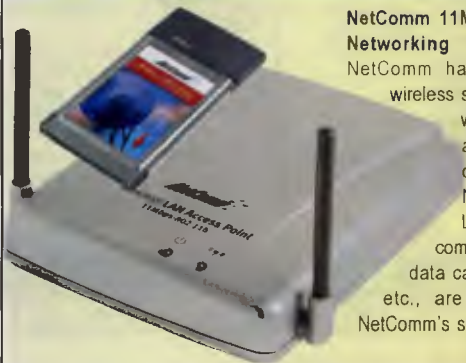
60GB (D0850) **\$2,199**

Receive an
extra 20GB
***FREE!**



NetComm 11Mbps 802.11B Wireless LAN Networking

NetComm have the complete range of wireless solutions for your environment, with 64 & 128-bit WEP secure access. Connectivity from desktop to portable to PDA. NetComm have your wireless LAN solution ready to be complete. Inventory management, data capture, dynamic office layouts etc., are all available to you with NetComm's suite of wireless LAN solutions.



WIRELESS LAN NETWORKING

Purchase NetComm's outstanding **Wireless Access Point** and one **Wireless LAN Adaptor** card and receive an additional Adaptor card to the same value ***FREE!**

Access Point (D4196) **\$625**

Wireless LAN Adaptor (D4198) **\$319**

***FREE** Adaptor Card

Smart I-Share 56

The affordable way to create a small network that enables everyone in your office or home to securely share the one Internet account (no need for multiple modems or phone lines). Share files, print from any PC, and save time on 'office run-around' associated with stand-alone PCs.

- Integrated 4-Port Ethernet Hub •
- 56K Modem and Internal Router •
- Upgradeable Hardware Firewall •
- Linux open source operating system •
- Auto-disconnect •
- Web-based configuration wizard •
- Flash upgradeable Remote Access Port



SMART I-SHARE 56

Purchase NetComm's unique **Smart i-Share** Internet gateway and receive the incredible USB LAN Key ***FREE!**

(A8868) **\$454**

***FREE** USB LAN Key

NetComm's Wave SP 56 & Roadster II 56 Ultra

NetComm provides the latest standards in modems that deliver you the best quality of modem services available. NetComm's Wave SP56 & Roadster II features NetComm's own enhanced Ultra Connect technology allowing you to connect faster and stay connected! Combined with simple installation and set-up, delivers the best solution for your requirements.



WAVE SP 56 & ROADSTER II 56 ULTRA

Purchase the **Wave SP56** or the **Roadster II** (NetComm's award-winning 56 K modems) and receive a ***Greater Union Movie Pass!**

Wave SP 56 (C6308) **\$179**

Roadster II 56Ultra (61194) **\$185**

***FREE** Movie Ticket

***All FREE items via redemption only for purchases between 19/11/01 & 31/01/02. It's easy to claim your dream deal!**

Just complete an application form and return it with your original receipt to Netcomm Pty Ltd, PO BOX 1200, Lane Cove NSW 2066 (forms found instore at Harris Technology or on www.ht.com.au)
***Terms and conditions apply.**



Netcomm's Smart i-Share modem (SM4200) Winner of the PC Authority Quality Award!





Not all items are in stock at all stores but can be ordered for Pick-up or Delivery.
Delivery charges extra.

Prices are subject to change. Check here for latest prices & products!!

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Belkin Surge & Ups

UPS SERIES

Regulator PRO Silver Series



Features:

- 2 Year Unlimited Product Warranty
- 175 Joule Energy Rating
- 3 Battery Back Up/Surge Sockets
- 1 Surge Protection Only Socket
- Power Management Software Included
- 1.8m Power Cord
- Telephone/Fax/Modem and UTP
- (RJ45) Protection
- 1.83m Telephone Cable
- RS-232 Communication Cable
- EMI/RFI Filtration

350VA

F6C350zSER-SB
(192 Watts)

(C9277)

\$189

500VA

F6C500zSER-SB
(300 Watts)

(C9278)

\$249

650VA

F6C650zSER-SB
(360Watts)

(C9279)

\$329

Surge control is important because even small surges or spikes can eventually destroy or affect the performance of expensive electronic equipment such as a computer, phone, fax, TV, VCR, stereo or microwave. Damage can occur either instantaneously or over time as smaller surges cause the gradual deterioration of internal circuitry, to voltage fluctuations.

No Hassle Warranties Belkin offer the best Connected Equipment warranties in the business. Full warranty protection means your equipment is insured against damage due to power disturbances of all kinds - surges, spikes, even lightning strikes.

Connected Equipment Warranties up to \$25,000.

Home Office Range

F5C205z4

Belkin's SurgeMaster line has been designed to protect entry-level computers, dot matrix printers, personal copiers and all other sensitive electronics in the home or office. Telephone/fax/modem protection



5 socket's

27,000 Amps of AC protection

(C4603) **\$79**

Connected Equipment Warranty up to \$50,000

Superior Grade

F5C206z2

Pentium III computers, audio/video equipment and office equipment need extra protection. 6-way Superior Grade range AC Line protection



Blocked space adapters

(C4604) **\$105**

Connected Equipment Warranties up to \$80,000.

Maximum Grade

F5C208z2

Maximum Grade series ideal for protecting commercial business computers, ADSL and cable modems, high-end printers and copiers, and sensitive audio/video equipment such as satellite receivers and home cinema systems.



8 socket's

39,000 Amps of AC protection

(C4607)

\$135

PDA ACCESSORIES



Belkin PDA Portable Keyboard
(D5946)

\$159

F5U109 USB PDA Adapter
(B6768)

\$59



Belkin 4-in-1 Stylus Pen
(C4694)

\$35

New From Belkin For 2002

USB 4 Port Economy HUB Single Surge Cube

F5U021-AUS

Add four USB peripherals to your PC and save your precious desktop space without adding clutter. Get Plug-and-Play convenience as you add USB printers, scanners, and hard drives.



(D5950) **\$45**

F5C195z

(D5966) **\$25**

The SurgeCube™ allows one electronic device to be protected from over voltages. It's ideal for laptops on business or personal trips, or for surge protection in a small space.



F5C195zTEL

The Belkin MasterCube™ protects one electronic device and one phone line from over voltages. Perfect for use with laptops on business or personal trips.

(D5956) **\$35**

USB IPAC Sync Charger

F8Q1000

The Belkin SYNC CHARGER CABLE for the iPAQ Pocket PC allows you synchronise and charge through any powered USB port with Ease.



(D5952) **\$45**

Don't Forget...

USB VideoBus II

F5U208

You create the show yourself with your PC & camcorder merged into a desktop video studio by the Belkin USB VideoBus II. The Belkin USB VideoBus II, complete with MGI VideoWave III SE software, gives your PC the power to make stunning movies & more!



(B4412) **\$145**

USB Pocket Hub

F5U007-UNV-AUS

The Belkin Pocket Hub allows you to instantly connect USB devices such as printers, scanners, external mice and keyboards, joysticks, digital cameras, or other USB hubs without having to restart your computer.



(C4577) **\$65**

Stone Street

F3L900-07-ICE-S

The Stone Street has a fully padded computer section that measures 38.11cm x 27.95cm x 10.16cm, for the most popular notebook style computers, and a fully equipped external pocket which measures 35.57cm x 25.41cm x 6.99cm. The Belkin High Speed Internet Modem cable transmits 10 times faster than any normal telephone cable for a clean, and clear transmission.



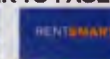
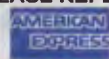
*FREE cable comes bundled with this part, available while stocks last

(D5951) **\$69**

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Belkin Networking

F5D5230Z4

4-Port Cable/DSL Gateway Router

The Belkin 4-Port Cable/DSL Gateway Router is the best solution for sharing a broadband Internet connection with multiple users. It allows you to build your 10/100 Base-T Ethernet network for sharing files and peripherals.



(D5943) **\$349**

F5D5130z5

F5D5130Z5 - 5-Port Network Switch (10/100Mbps)

(D4192) **\$134**



F5D5130Z8- 8-Port Network Switch (10/100Mbps)

(D4193) **\$174**

Belkin NIC Cards are the best solution for connecting your desktop PC or notebook to a cable or DSL Internet modem or building a 10/100 Base-T Ethernet network.

F5D5000

10/100Mbps PCI NIC

(C5581) **\$29**



F5D5020

10/100Mbps PCMCIA NIC - 16 Bit

(C5583) **\$99**

F5D5010

10/100Mbps CardBus NIC - 32 Bit

(C5582) **\$129**



F5D9001-5M Starter kit(2x10/100 PCICard & 5m Cat5e cable)

(D4078)

\$74



F5D9002-5M Mobile kit(1xPCMCIA Card & 5m Cat5e cable)

(D4084)

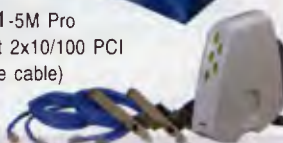
\$153



F5D9101-5M Pro kit(1x5 Port 2x10/100 PCI & 5m Cat5e cable)

(D4085)

\$199



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Link
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products
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Belkin - KVM Switches

KVM ESeries & SoHo Rage

F1DB102P

F1DB104P

F1DB102P-Economy- 2 Port KVM Switch - P/S 2

(D3162) **\$95**

F1DB104P-Economy- 4 Port VM Switch - P/S 2

(D3159) **\$176**



KVM ESeries & SoHo Rage

F1DS102P

F1DS102P SoHo 2 Port KVM Switch - P/S 2

(D3163) **\$289**

F1DS104P SoHo 4 Port KVM Switch - P/S 2

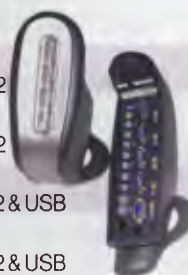
(D3166) **\$369**

F1DS102T SoHo 2 Port KVM Switch - P/S 2 & USB

(D3165) **\$349**

F1DS104T SoHo 4 Port KVM Switch - P/S 2 & USB

(D3167) **\$449**



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Omniview PS/2 KVM Cables



The easiest & neatest way to connect all your computers and servers to your PS/2 & USB KVM switches, providing image clarity for high-resolution applications.

F3X1835-06-GLD

All-in-one PS/2 Gold Series Kit, 1.8m

(C4674) **\$59**

F3X1835-10-GLD- All-in-one PS/2 Gold Series Kit, 3m

(C4089) **\$69**

F3X1835b15-GLD- All-in-one PS/2 Gold Series Kit, 4.5m- bag pack only

(C4676) **\$94**

F3X1835b25-GLD- All-in-one PS/2 Gold Series Kit, 7.5m- bag pack only

(C4677) **\$107**

Omniview USB KVM Cables

F3X1962-06- All-in-one USB Pro Series Plus Kit, 1.8m

(C4680) **\$34**

F3X1962-10- All-in-one USB Pro Series Plus Kit, 3m

(C4681) **\$49**

F3X1895-06-GLD- All-in-one USB Gold Series Kit, 1.8m

(C4682) **\$49**

F3X1895-10-GLD- All-in-one USB Gold Series Kit, 3m

(C4683) **\$65**



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Service - Telstra Approved

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DSL-504 ADSL Router with 4 port 10/100 Switch Connect single or multiple PC's on an Ethernet LAN to an ADSL

(C7593)

\$645



DSL-200 USB ADSL Modem with USB port. ADSL Modem designed for high speed internet access

(B7197)

\$299

DSL-300 Ethernet ADSL Modem Connect single or multiple PC's on an Ethernet LAN to an ADSL

(B7198)

\$399

DSL-100D Internal PCI ADSL Modem Compatible for Windows based PC's to connect via G.lite or G.dmt

(B7196)

\$229

DSL-500 ADSL Router Connect single or multiple PC's on an Ethernet LAN to an ADSL

(D0801)

\$459

ADSL / Cable Router

NEW

DI-713P 11 Mbps Wireless IP Residential Gateway for xDSL and Cable modems with 3-port 10/100M switch and print server

(C7596)

\$745



DI-804 IP Residential Gateway for xDSL and Cable Modems with 4-port 10/100Mbps Switch.

(C2361)

\$369

DI-701 10/100 IP Residential Gateway for xDSL and Cable Modems. Internet ready.

(98249)

\$285

10/100 Switches

DES-1024R 24-Port 10/100Mbps Fast Ethernet Unmanaged with 24 N-Way UTP ports.

(98256)

\$849



DES-1005D 5 Port 10/100Mbps Fast Ethernet Switch with 5 x N-Way UTP Ports. Palm Size

(85101)

\$149

DES-1008D 8 Port 10/100Mbps Fast Ethernet Switch with 8 x N-Way UTP Ports. Palm Size

(98254)

\$239

DES-1016R+ 16 Port 10/100Mbps Fast Ethernet Unmanaged with 16 N-Way UTP Ports. Rackmount Size

(D4164)

\$699

DES-1032 32 Port 10/100Mbps Fast Ethernet Unmanaged Switch with 32 N-Way UTP Ports. Rackmount Size

(B7165)

\$1,299

Gigabit Solution

DES-1218 Gigabit Ethernet Switch - Unmanaged - 16 port 10/100Mbps Fast Ethernet with optional 2 x 1000BaseSX ports (SC)

(B7166)

\$975



DES-1009G Gigabit ethernet Switch 8 Port 10/100Mbps Fast Ethernet Unmanaged Switch with 1 Port 1000Base T Gigabit (Copper)

(D1196)

\$749

DES-3326 24 Port 10/100Mbps Fast Ethernet Layer 3 Managed Switch with optional 2 Port Gigabit Module Slot

(D1197)

\$3,229

DES-3225G 24 Port 10/100Mbps Fast Ethernet Layer 3 Managed Switch with optional 2 Port Gigabit Module Slot

(90755)

\$1,820

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(at top of page) for more products and latest info!

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Home Networking

Wireless Solutions

NEW

DWL-905 Wireless LAN PCMCIA starter Kit

- 2 x Wireless LAN PCMCIA Cards (DWL-650)
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(C0713) **\$990**

DWL-120 11Mbps Wireless LAN USB Adapter

(A8487) **\$305**

DWL-650 11 Mbps Wireless LAN PCMCIA Card

(A9247) **\$242**

DWL-500 11Mbps Wireless LAN PCI Card

(A9241) **\$339**

DWL-1000AP 11Mbps Wireless LAN Access Point

(A9251) **\$584**

Ethernet Networking

DFE-910

Performance Network Kit 2 x 10/100 MB PCI Network adapters

(88060) **\$275**

DSS-5+ 5 Port 10/100 Mps Dual Speed Switch

(89269) **\$179**

DSS-8+ 8 Port 10/100 Mps Dual Speed Switch

(C2935) **\$289**

RDE-805TP 5 Port 10 Base-T Ethernet Unmanaged Hub

(88048) **\$74**

DFE-530TX+ PCI-bus 10/100M Fast Ethernet Network Interface Card

(88046) **\$42**

DSS-16+ 16 Port 10/100 Mps Dual Speed Switch

(D1525) **\$528**

USB Peripherals

DU-H4 4 Port USB Hub

4 USB Type A ports for Downstream connection to 4 USB devices, 1 USB Type B port for Upstream

(79131) **\$82**

DSB-500 2 Port USB PCI Adapter

(D0984) **\$52**

DSB-V100 USB Digital Video Capture Device

(C2366) **\$159**

DSC-100 100K Dual Mode Camera

(D0985) **\$136**

DSC-350 Dual mode Digital Still camera

(B3268) **\$312**

56K Modem

DFM-560E DFM-560E External 56K VOICE & Data

ITU-T V.90 and K56flex Auto-Detect 56Kbps capable download speed from Internet Service Provider supporting 56K Flex.

(B6479) **\$109**

DU-560M

USB 56K Voice and Data Modem

(98261) **\$99**

DFM-560i

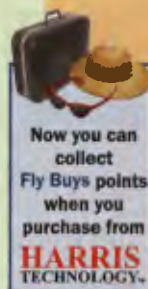
Internal, 56k Voice and Data Modem

(74361) **\$69**

DKVM-2

Pro-connect 2 Port Keyboard-Video-Mouse Switch

(C7576) **\$169**



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(B1846)

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SPYCAM MINIATURE VIDEO CAMERA



(A8661)

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SWANNFIRE CARDBUS

FireWire PCMCIA Card

- FireWire solution for laptops
- Data transfer speeds of up to 400Mbps
- Suitable for laptop users and travellers
- Allows "hot swapping"
- 1 year "Hassle Free" warranty

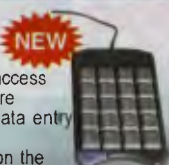


(C2307) **\$129**

MULTI-KEYPAD *Numeric function only

USB Multi Function Numeric Keypad

- Programmable handy multimedia hot keys to access email, internet, control speaker volume and more
- Convenient "0", "00" and "000" keys for quick data entry
- 2 extra USB ports
- Light and compact – great for travelling or to fit on the smallest desktop
- PC & Mac* compatible



(D5967) **\$49**

SWANNSMART USB MODEM

56K V.90 External Modem

- Bus powered – no need for extra power supply cables
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- Plug and play installation
- Includes NetTools Internet Toolkit CD ROM
- 5 year "Hassle Free" warranty



(B9930) **\$115**

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Everything you need for easy and fun digital video editing

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- Complete kit with FireWire PCI Card, software, bonus headset and FireWire cable
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(A1794) **\$189**

SWANN USB MULTI-HUB

USB 4-Port Hub

- Easy and convenient access to USB ports
- Allows "Hot Swapping"
- PC & Mac compatible
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- 1 year "Hassle Free" warranty



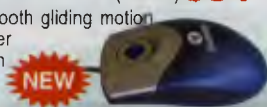
(C6793) **\$55**

OPTI-PRO

USB Optical Trackball Scroller Mouse

(D5968) **\$54**

- Precise optical sensor for an accurate smooth gliding motion
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The Matrox G550 graphics card series comes standard with 32 MB of Double Data Rate (DDR) memory, a 360 MHz primary RAMDAC, and a unique HeadCasting Engine accelerating 3D online communication.

The Millennium G550 is a titan among graphics cards with trendsetting appeal for the business and home entertainment markets. Comprising an extensive feature set including third-generation DualHead® display capabilities, outstanding 2D performance, and DVI - I support, the Millennium G550 delivers exceptional graphics performance and product stability and ignites a new trend in online communication.

KEY FEATURES:

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- 32 MB high-speed Double Data Rate (DDR) memory
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- Bundled HeadCasting software for 3D communication
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- Third-generation DualHead® technology including eDualHead browser enhancements



| | | | | |
|---------------|---|--------|---------|--------------|
| G55+MDHA32DB | Matrox G550 32Mb Single DVI output, Dual Head display | OEM | (C7873) | \$305 |
| G55+MADDA32DB | Matrox G550 32Mb Dual DVI output, Dual Head display | OEM | (C7874) | \$335 |
| G55+MDHA32DR | Matrox G550 32Mb Single DVI output, Dual Head display | RETAIL | (C7875) | \$345 |
| G45+MVTA32DRi | Matrox G450 32Mb Dual Head display | RETAIL | (C0016) | \$675 |

Marvel G450e TV (PAL) 32Mb DDR inc Matrox PC-VCR and Matrox DVD Inc Ulead Videostudio 4.0 and Ulead Photo Explorer 6.0

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Make live video calls with the built-in microphone or broadcast live over the Internet. ClickSmart 510 has a USB connector for easy installation and comes with a two-year warranty.

(D5771)

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Cordless Freedom™ Optical

The ultimate cordless keyboard and optical mouse. This striking combination is cordless for less clutter, more style and more freedom.



Seamlessly access and navigate the Internet at the touch of a button or the scroll of the iNav wheel. Intuitive multimedia controls are at your fingertips and allow you to control MP3s, DVDs and CDs from your keyboard. Every keystroke is made easy with Zero Degree Tilt, offering one of the slimmest keyframes available. Logitech's patented digital cordless radio technology is encrypted to secure your privacy. The included Cordless MouseMan® Optical will perform perfectly for years to come. 5-year warranty.

(C6106)

\$199

Cordless Freedom



Enjoy complete control and reliable performance, without cords that catch or tangle. Access the Internet, open e-mail, search or launch applications with one touch of a key. Includes Logitech Cordless Mouse. 3-year warranty.

(D3991)

\$129

QuickCam® Pro 3000

With its CCD sensor, QuickCam Pro 3000 takes pictures and videos with true 640x480 resolution. Use its built-in microphone to make live video calls over the Internet and send pictures and videos with your emails. QuickCam software lets you easily setup a digital surveillance camera and broadcast live video and audio over the web. Add professional titles, fades and wipes to your videos with the included MGI software. Connection via USB. 2-Year warranty.



(B0805)

\$209

MouseMan® Dual Optical

The technologically advanced mouse. Two 800 dpi optical sensors deliver intelligent tracking on a variety of surfaces. No ball means no sticking and no hassle. Five-year warranty.

(D4013)

\$79



Cordless MouseMan Optical (C1186)

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MouseMan Traveller (D4014)

\$114



Optical Mouse (B9948)

\$49



TrackMan Live! (77753)

\$285



Internet Navigator (D0560)

\$65



Deluxe Access 104 (B0819)

\$38



Digital Memory & Readers

PRETEC CompactFlash



With CompactFlash Digital Film you can increase the storage capacity of any compatible digital camera or PDA.

| | | |
|-------------------------------|---------|--------------|
| 16MB CompactFlash | (B2920) | \$45 |
| 32MB CompactFlash | (B2921) | \$75 |
| 64MB CompactFlash | (B2922) | \$119 |
| 128MB CompactFlash | (B2923) | \$219 |
| 256MB CompactFlash new | (C0777) | \$489 |

PRETEC SmartMedia



SmartMedia cards expand the storage capacity of any compatible digital camera. Suitable for digital cameras from Olympus, Fuji and others.

| | | |
|------------------|---------|--------------|
| 8MB SmartMedia | (B2914) | \$35 |
| 16MB SmartMedia | (B2915) | \$45 |
| 32MB SmartMedia | (B2916) | \$69 |
| 64MB SmartMedia | (B2917) | \$129 |
| 128MB SmartMedia | (C3680) | \$285 |

PRETEC MultiMediaCard



MultiMediaCard is the world's smallest removable flash storage card! Suitable for MP3 players, Mobile phones and Digital Video Cameras.

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| 16MB MultiMediaCard | (B9871) | \$69 |
| 32MB MultiMediaCard | (B9873) | \$99 |
| 64MB MultiMediaCard | (B9878) | \$205 |

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Secure Digital media features faster data transfer rates and the ability to manually write-protect data.

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|--------------------------------|---------|--------------|
| 16MB SecureDigital | (D4115) | \$89 |
| 32MB SecureDigital | (D4116) | \$143 |
| 64MB SecureDigital | (D4117) | \$248 |
| 128MB SecureDigital new | (D5918) | \$439 |

Memory Card Adapters



| | | |
|---|---------|--------------|
| SDMCA PC Card 4-in-1 Card Adapter | (D4139) | \$119 |
| CFCA PC Card CompactFlash Card Adapter | (C2422) | \$22 |
| CFCAP PC Card Compact Flash Card Adapter | (D4147) | \$33 |
| SMCA PC Card SmartMedia Card Adapter | (B2918) | \$99 |

USB Digital Memory Readers

Exchange data between your PC, laptop, MP3 player or Digital Camera.



| | | |
|---|---------|--------------|
| UISDMC1 USB 4-in-1 Socket + Compact Flash Card Drive | (D4155) | \$164 |
| UISC3 USB SmartMedia and CompactFlash Card Drive | (B2926) | \$95 |

4-in-1 Readers

4-in-1 readers have a unique single socket which will take Secure Digital Card, MultiMediaCard, Memory Stick and SmartMedia.

FireWire Digital Memory Readers



| | | |
|--|---------|--------------|
| POCFFW FireWire CompactFlash Card Drive | (D4161) | \$109 |
| POSMTW FireWire SmartMedia Card Drive | (D4162) | \$138 |
| MIMKFW FireWire Memory Stick Card Drive | (D4163) | \$148 |

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"Add a CD-ROM to your Laptop!"



This 24x CD-ROM drive will connect to any PC Card enabled PC or Notebook & is ideal for mobile computing.

(97766) **\$328**

DVD8X

• PC Card Portable 8x DVD-ROM drive

(B2931) **\$660**

CDRW4X

• PC Card Portable 4x4x20 CD-RW drive

(C7205) **\$530**

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Add super fast serial and parallel port interfaces to any PCI equipped PC.

(90688)

Priced from \$77



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8x4x32 (B2904) **\$899**

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16x10x40 (B9843) **\$1,489**

Rent* \$16.32/wk

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FireWire for Notebook



Adds two FireWire ports to your Notebook with a Cardbus Type II interface.

- Plug and Play!
- Free video capture and editing software.

FireWire to CardBus controller (2 port)

(B9849)

\$118

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PCI Firewire Cards

Connect your digital video camera to your PC. Download and edit your own movies.



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|-------------------------------------|---------|--------------|
| PCI Firewire Card - 4 ports | (90689) | \$109 |
| PCI Firewire Card - 6 ports | (A5161) | \$143 |
| PCI Firewire Repeater Card - 5 port | (A5162) | \$118 |
| PCI Firewire Repeater - 6 port | (A5163) | \$154 |
| PCI Firewire Repeater - 10 port | (A5164) | \$205 |
| 6 pin to 6 pin Firewire cable | (B2905) | \$14 |

KOUWELL **IK**

USB Hubs & Cards



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|---------------------------------|---------|--------------|
| USB Hub - 6 ports | (79702) | \$89 |
| PCI USB Card - 2 ports | (84801) | \$44 |
| USB Network Cable | (B2908) | \$75 |
| USB to Printer Cable | (84803) | \$33 |
| Internal 3.5" USB Hub - 4 ports | (B2909) | \$65 |
| USB to 10/100 Ethernet Adapter | (B2912) | \$115 |

KOUWELL **IK** **PCI SCSI Cards**



**NEW
160MB
Card**

The easy way to expand your PC. Connect multiple SCSI devices to one card.

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|-------------------------------|---------|--------------|
| PCI Bus, Ultra-SCSI | (90681) | \$97 |
| PCI Bus, Ultra-Wide | (90683) | \$175 |
| PCI Bus, 2 channel Ultra-Wide | (90684) | \$358 |
| PCI Bus, Ultra2-Wide | (90685) | \$245 |
| PCI Bus, Ultra 160 | (B9847) | \$480 |

KOUWELL **IK**

IDE Acceleration & Expansion Card



Speed up your PC's new hard disk drives with this PCI plug in Ultra DMA 100 card. Supports transfer speeds of up to 100MB/s with new ATA100 drives, and includes the ability to run up to 4 extra IDE or ATAPI drives on your system.



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|---------------------------------|---------|--------------|
| PCI IDE Ultra DMA 100 Card | (90688) | \$77 |
| PCI IDE Ultra DMA 100 RAID Card | (B8410) | \$110 |

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Introducing USB 2.0. Faster than FireWire. Compatible with existing USB peripherals.

5 port Card (B9850)

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4 port Hub (B9851)

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Signature IV CD Printer



- 1200x1200 dpi res
- Fast: 27 seconds per disc.

 (B9917) **\$3,298**

Rent* \$32.34/wk

 See page 33
for Inkjet Printable Discs

PRIMERA
TECHNOLOGY INC.

Signature Pro CD Printer



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- Superfast
- Dual Ink Cartridges

 (C3681) **\$4,069**

Rent* \$38.02/wk

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for Inkjet Printable Discs

PRIMERA
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Inscripta Printer



- 610 x 305 dpi Thermal
- Durable finish

 (B2932) **\$5,999**

Rent* \$54.68/wk

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for Thermal Printable Discs

PRIMERA
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**NOW
24x**

 Premastering software Included- optional
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Composer CD-R 24x, 50 disc

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 (C5561) **\$8,359** Rent* \$72.53/wk

2 x CD-R

ComposerPro CD-R 24x, 100 disc

 (D5896) **\$8,375** Rent* \$72.66/wk

2 x DVD-R

ComposerPro DVD-R 2x/8x, 100 disc

 (D4190) **\$13,095** Rent* \$107.27/wk

 Add a printer from those shown at left and an
adapter plate to upgrade your Composer/
ComposerPro to a full burn and print solution.

Printer Stand for Inscripta Printer

 (B8878) **\$110**

Printer Stand for Signature III/IV/Pro Printer

 (C1748) **\$110**

Buzzsaw Network Burning Software

 This unique software allows your Composer/ComposerPro
to be networked in an office so that anyone can start up and
monitor recording and printing jobs.

 (D0538) **\$2,299**


Desktop Series

R I M A G E™

**NEW
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 Premastering network
software included.
Software developers
kit also included.


1 x CD-R

Desktop 800 24x, 60 Disc

 (D4141) **\$10,050** Rent* \$85.81/wk

1 x DVD-R

Desktop 800 2x/8x, 60 Disc

 (D4148) **\$11,854** Rent* \$97.11/wk

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Desktop 1000 24x, 50 disc

 (D4143) **\$17,110** Rent* \$138.19/wk

Desktop 4000 24x, 50 disc

(optional 110 disc)

 (D4144) **\$20,820** Rent* \$168.16/wk

2 x DVD-R

Desktop 1000 2x/8x, 50 disc

 (D4151) **\$20,409** Rent* \$164.84/wk

Desktop 4000 2x/8x, 50 disc

(optional 110 disc)

 (D4152) **\$23,707** Rent* \$191.47/wk

4 x CD-R

Desktop 4000 24x, 50 disc

 (D4145) **\$22,264** Rent* \$179.82/wk

4 x DVD-R

Desktop 4000 2x/8x, 50 disc

 (D4154) **\$28,036** Rent* \$226.44/wk

Unattended Copiers


MICROBOARDS
Technology, Inc.

Orbit 2 CD Duplicator

 Stand Alone CD Duplicator with 1 16x CD-R drive. 50 CD Capacity.
An internal CD-ROM Drive holds the master disc being duplicated.

 "The Orbit II, aptly billed as "The Office Copier," is built to fit: it's
easier to use than a fax machine, it occupies about the same space,
and it comes at an alluring list price." Emedia Magazine

Orbit 2 CD Duplicator

 (B9918) **\$7,215**

Rent* \$62.60/wk

Orbit 2 DVD Duplicator

• 2x DVD-R • 8x CD-R

 (D4191) **\$9,260**

Rent* \$79.06/wk



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CD-R/CD-RW & DVD-R/DVD-RW: Storage for life

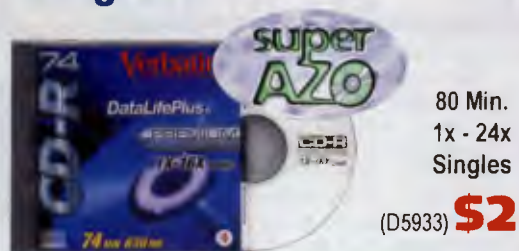
DataLifePlus CD-R - 24x



DataLifePlus CD-R Audio



DataLifePlus CD-R - 24x Singles



DataLifePlus Colours CD-R



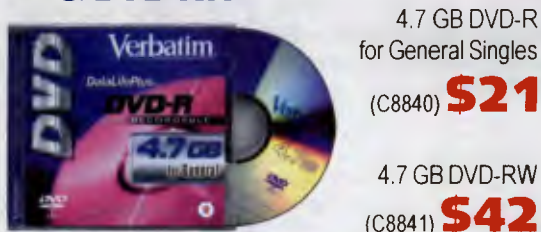
Printable CD-R Media In Spindles of 50



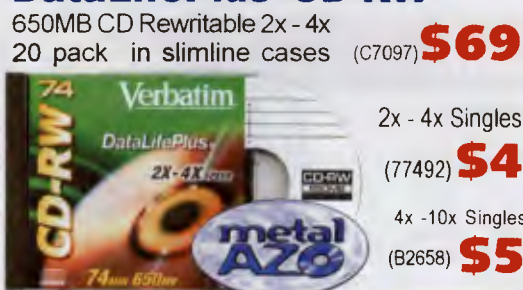
DataLife CD-R



DataLifePlus DVD-R & DVD-RW



DataLifePlus CD-RW



Verbatim Digital Media

CompactFlash



16MB (C8984) **\$45**
32MB (C8986) **\$75**
64MB (C8987) **\$119**
128MB (D0020) **\$219**

SmartMedia



16MB (C8989) **\$45**
32MB (C8990) **\$69**
64MB (C8991) **\$129**

MultiMedia Card



16MB (C8994) **\$69**
32MB (C8995) **\$99**
64MB (C8996) **\$205**

DataLife Neons

Neon Coloured
floppy disks
for easy
filing.



Verbatim DataLifePlus CD's represent the latest in technology. Featuring a proprietary blue Metal-Azo dye which has the best resistance to sunlight, silver reflective layer for optimum read and write performance and multispeed recording.

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Card
(62677)
\$75

64MB Picture
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(82249)
\$99

96MB Picture
Card
(88332)
\$195

Kodak

Good quality
camera's need
good quality
papers

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Picture Paper

ultra glossy 15 sheets
(B1656)
\$14

Kodak
Picture Paper

Satin 15 sheets
(D3251)
\$14

Kodak
Picture Paper

Semi gloss 75 sheets
(D3258)
\$35

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Kodak DX3900

The high-performance camera.

Set your own color mode, ISO, and lighting exposure settings to get your perfect picture. Thanks to 3.1MP resolution, you'll get excellent picture quality on prints up to 11" x 14". The DX3900 comes with 6X zoom (2X optical and 3X digital) and a COMPACTFLASH Card to keep you shooting longer. And with the DX3900's optional telephoto, wide-angle, and close-up lens attachments, you can extend your creativity.

- CCD resolution
- image resolution 3.3 megapixel 2160x1440 pixels
- Continuous Video / movie mode and sound
- burst maximum 8 pictures at 0.8MP resolution
- lens 35 mm - 70 mm, (35 mm equiv.)
- auto focus
- zoom 6X (2X optical, 3X digital)



(C7689)

\$1,099

Kodak DX3700

Great pictures made easy.

EasyShare DX3700 Digital Camera. It has 3.1 MP resolution for excellent picture quality up to 11" x 14". Getting closer to the fun is easy with the 3x digital zoom.

- 3.1MP resolution
- 3x digital zoom!
- 8MB internal memory
- Compatible with the Kodak EasyShareCamera Dock



(D0792) **\$779**

Kodak DX3215

Making digital easy— one picture at a time.

Great pictures made easy

Want to get into digital with ease? You've found your camera. Introducing the KODAK EasyShare DX3215. This camera gets you started with 1.3MP resolution for great prints up to 5" x 7". A 4X zoom (2X optical and 2X digital) lets you get closer to the fun. It's the perfect camera to get you into digital picture-taking. • 1.3MP resolution • One-touch picture transfer • 8MB internal memory



(C9539) **\$458**

Kodak DC5000

Rugged, durable,

and easy-to-use, the KODAK DC5000 will help you get the job done.

The DC5000's weatherproof body will hold up under the toughest circumstances. The 2X optical (30 - 60 mm) and 3X digital zoom let you choose wide angle or telephoto to take pictures in a variety of open spaces.

A practical, intuitive package that is easy to use but tough on the job



(A3540) **\$999**

Kodak

Simple-to-use

KODAK DX3500 Digital Camera. Get crisp, vibrant prints thanks to its 2.2MP resolution and 3X digital zoom. The DX3500 comes equipped with a COMPACTFLASH Card expansion slot so you can boost its memory capacity.

- KODAK Picture Software lets you instantly view, edit, e-mail, and print your pictures.
- Get great-looking prints with 2.2MP resolution and 3X digital zoom.



(C9587) **\$575**

Kodak DX3600

Easy share dock system

KODAK DX3600 Digital Camera with Kodak easy share dock system. Get crisp, vibrant prints up to 8" x 10" thanks to its 2.2MP resolution and 3X digital zoom. Start shooting right away with 8MB of internal memory. The DX3600 comes equipped with a COMPACTFLASH Card expansion slot so you can boost your camera's memory capacity

Recording time only limited by the size of the compact flash being used



KODAK DX3600 (C5964) **\$779**

Kodak MC3 portable media device

All the multimedia you've ever wanted in one little player

Click into digital video mode to shoot funny movies or snap a few digital pictures. Download your favorite MP3s and take them with you, listening via ear buds or through your boom box or car stereo. It's one of the only MP3 players with a reflective color preview screen, so you can use it even in bright sunlight. Transferring to your PC is a breeze. It even lets you combine your pictures, music and video into unique music videos.



(B9818) **\$385**

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Directwww.ht.com.au/cat/samsung

High-breed Monitors

Samsung 151s LCD monitor 15 inch monitor

**Specifications:**

- 15" viewable screen resolution XGA(1024 x 768)
- Colors 16.2M
- H.Frequency 30 - 61 kHz
- V.Frequency 50 - 75 Hz
- Contrast 330:1
- Luminance 250cd/m2
- Viewing Angle 140°/120°
- Input connectors 15pin D-Sub
- Sync Type Composite H/V, SOG
- Power 30W(Max.)

Optional Pivot to landscape*

(D3614)

\$989

*the head of the monitor can actually turn clockwise so you can get a visual landscape picture

Samsung 151BM 15" Multimedia LCD monitor 15 inch monitor

**Specifications:**

- 15" Viewable LCD Monitor
- 1024 x 768 max resolution @ 76Hz
- 140°/120° viewing angel.
- Fast and accurate auto adjustment
- NUTEK Certified
- Three colour choices: silver/black/ivory
- Pivot technology
- Built in Multimedia Speakers
- Optional USB-Hub available
- Weight 4.1 kg

Optional Pivot to landscape*

(C1697)

\$1,098

SyncMaster 753DF 17 inch monitor

**SOHO Series Features:**

Flatter images are easier on the eyes and slimmer products save on space and make users comfortable in their working environment. That's real value. And that's also what makes Samsung the World's Number 1 Monitor manufacturer.

Specifications:

- 17"(16" Viewable)
- 0.20mm dot pitch (horizontal)
- 1280 x 1024 @ 66Hz Maximum Resolution
- DynaFlat - Infinitely Flat Tube
- Smart III surface treatment (anti-static & anti-glare)
- On Screen Digital Display
- Plug & Play Compatibility
- MPR-II/NUTEK certified

(C1283)

\$539

SyncMaster 955df 19 inch monitor

**Graphix Pro Series Features:**

Samsung continues to spearhead the monitor market in meeting customer's needs, built on its reputation as a leading provider of the highest quality monitors utilising the latest technologies to develop products to meet customers demands. Samsung's commitment to customer satisfaction and leadership in the monitor industry has been proven by the value that Samsung monitors provide its customers.

Specifications:

- Model No.: 955df 19" (18" Viewable)
- 0.20mm dot pitch (Horizontal)
- 1600 x 1200 @ 68Hz Maximum Resolution
- DYNA Flat - Infinitely Flat Tube
- Smart III Surface Treatment (Anti-Static & Anti-Glare)
- Onscreen Digital Display
- MPR-II/NUTEK Certified
- Plug & Play Capability

(C3975)

\$875

Samsung monitors come in 3 colours (ivory, silver and black)

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About...*
☐ Extend to a total of 3 Years Return to Base

☐ Extend to a total of 5 Years Return to Base

☐ Upgrade Return to Base of Warranty Extension to On-Site

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*Delivery charges extra.

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PLEXTOR® PlexWriter
24/10/40A E-IDE
\$619
 (C7688)
 Rent* \$6.78/wk

High speed – Fastest in the world. High Quality – New writing strategy – POWEREC II High Reliability – Save your disc – BURN Proof.

The PlexWriter 24/10/40A E-IDE (ATAPI) drive, with built-in BURN-Proof technology, delivers exceptionally fast performance in a professional 3-in-1 CD solution, while upholding the legendary Plextor reliability.

How does PowerRec-II function?

PowerRec-II checks the quality of a disc in order to set up the appropriate writing speed and optimised laser power for the disc. This technology promises, in Zone CLV, excellent writing in each area of the disc. The PlexWriter records CD-R discs at 24X speed, rewrites CD-RWs at 10X, and reads back all CDs at 40 speed. BURN Proof (Buffer Under RuN - Proof) enables you to stop writing before buffer under run errors occur and then to continue writing by tying last point of recording and the next start point ... no more drink coasters. These drives are the best of the best. Comes with software, cables, manuals, ready for installation.

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Not all items are in stock at all stores but can be ordered for Pick-up or Delivery*

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 *Delivery charges extra

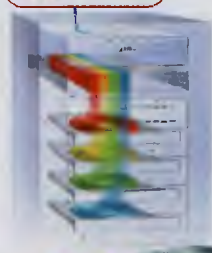
PLEXTOR® Portable For Notebooks & PC's 8/8/24 USB



It's the first-ever portable slim CD-R/RW drive from Plextor with 8 Speed writing and 8 Speed rewriting by full CLV technology with "BURN-Proof" and 24 speed reliable reading. The PX-88TU features USB 2.0 interface (maximum transfer rate of 480Mbps). The PX-88TU's unique see-through window enables easy identification of the disc inside the drive for both 12 and 8cm discs. All Plextor drives are supplied with:

- MVP 2000 Create a digital jukebox and customized play lists, Record audio CDs from the play list on CDR, Automated internet access to the CDDb database supplies album, song and artist information.
- Audio FS – allows for Drag & Drop access to any CD-Audio track as if they were .WAV files.
- Audio Capture 2000 - Drag & Drop tracks from standard audio CDs
- Plextor Manager 2000 utility software
- Disc Dupe 2000 – Duplicate your own CDs

(D0372) **\$799** Rent* \$8.75/wk

OPTISTOR®

Advanced
CD caching
technology!

How to put up to 254 CD's into 1 convenient central 5 bay CD tower

The market leading CD tower offers fast and simple sharing of CD (and DVDs) on your network. New caching technology enables you to quickly store 100's of CD's onto a built-in fast hard disk within the tower. With the new optional CD-R/RW feature, the CD tower can also feature 'writing to CD' across the network.

- Axis technology at the heart of the CD Tower
- NEW optional CD-R/RW function enables you to burn to CD across the network
- True plug n play NAS device - The Optistor CD tower can be plugged in anywhere
- In built web server for easy web browser management

(B6595) **FROM \$2,599** Rent* \$25.49/wk

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Smart Storage Solutions

Network Attached Storage

NAS 160GB

iomega® NAS 160GB servers, with Windows 2000 technology and multiple high-speed interfaces Ethernet and Ultra 160 SCSI. Includes free 20-seat license for QuikSync™ 3 automatic client backup software.



NAS 160GB

(C5567) GST Inc:

\$7,049

NAS 320GB

iomega serves up performance! iomega® NAS 320GB servers, with Windows® 2000 technology and multiple high-speed interfaces for 10/100 and Gigabit Ethernet and Ultra 160 SCSI. Includes free 50-seat license for QuikSync™ 3 automatic client backup software.



NAS 320GB

(C5568)

\$9,149

An affordable total storage solution as easy to use, but far superior to, the floppy drive

iomega's Zip® 100MB USB-Powered drive is affordable, reliable, easy to use and has a sleek, durable design powered through the USB cable for complete plug-and-play compatibility.



(D0587)

\$176

Peerless

The next generation in high-capacity removable storage. iomega's Peerless™ drive system offers 10GB and 20GB disks, interchangeable interfaces, and 15MB/sec transfer rates for stunning performance. Firewire® and USB 1.1 interfaces available.



(C3525)

\$829

Zip 100MB disk
(23772)

\$25

10-pack:
(21889)

\$189

Zip drive carry case
(31823)

\$49

Zip SCSI cable
(46304)

\$35

Zip disk labels
20-pack
(48059)

\$5

Jaz 2GB External Drive
(A4022)

\$785

Jaz 2GB disk
(61652)

\$205

Jaz 2GB 3-pack
(57271)

\$595

Jaz 1GB disk
(24218)

\$199

Jaz 1GB 3-pack
(32844)

\$589

Predator

iomega Predator CD-RW drive

iomega® Predator™ Firewire (8x4x32) drive
Announcing the latest addition to the hottest looking external CDRW in the iomega range - the new Predator with Firewire connection. PC and Mac compatible, the new Predator Firewire allows true drive speed of 8x4x32, and provides versatility with interchangeable USB & PCMCIA adapters

Predator™ USB iomega CD-RW External

(B4416) **\$549**

Predator™ Firewire 8x4x32

(C2413) **\$685**



iomega CD-RW

CD-RW Drive

USB 2.0 capability gives iomega's new external CD-RW drive amazing 16x10x40x performance with PCs that support the USB 2.0 standard. Also fully backward compatible with USB 1.1, providing near-universal connectivity with Mac and PC computers and 4x4x6x performance. Includes Buffer Under-run protection and NEW iomega HotBurn CD creation software.



(D4043) **\$518**

Host Powered 250 USB

NEW - Host-powered Zip® 250MB USB drive Now it's even easier to take your information with you. The Zip® 250 USB drive is now available with a USB cable that provides both data and power, so you don't need any external power source. It's easy to connect (just plug it in) and easy to launch (no rebooting)! This new drive is compatible with most major operating systems and all Zip 100MB and 250MB Zip disks.



Host powered 250 USB Ext

(B6404) **\$350**

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- ☐ Extend to a total of 5 Years Return to Base
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Multimedia: DVD & Blank Media

Web Direct

See Web Direct Link (at top of page) for more products and latest info!

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apc
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2001

DVR-A03
WINNER OF
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MAGAZINE'S
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HARDWARE'
AWARD

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your
Fly Buys
points!

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Pioneer DVD-A06SZ 16x SLOT LOADING DVD-ROM DRIVE UPGRADE KIT

FEATURES

- 16x for DVD, 40x for CD
- Ultra DMA66
- Super quiet mechanism
- Vertical or horizontal mounting

INCLUDES:

- Power DVD software decoder
- Mounting screws & audio cable
- Pioneer DVD-ROM Drive (2 year warranty)

Includes: 5 x DVD movie rental vouchers from Blockbuster Video
(included inside product box - see voucher for conditions and expiry dates)



DVR-A06SZ
(D1015)

\$195



Pioneer DVD DVR-A03 DVD-R/RW DRIVE

One drive...
One complete recording solution!

FEATURES

Writes: DVD-R (2x) DVD-RW (1x)
CD-R (8x) CD-RW (4x)

Reads: DVD-ROM, DVD-Video, DVD-R,
DVD-RW, CD-ROM, CD-R, CD-RW,
CD-TEXT, Photo CD, Audio CD

INCLUDES

- SONIC MyDVD Authoring Software
- PrimoDVD Writing Software by Veritas
- STAEDTLER LUMOCOLOR pen
- Power DVD software decoder
- 2 x DVD-R Media
- 5 x CD-R Media
- 1 x DVD-RW
- 5 x Blockbuster Video DVD movie rental vouchers

DVR-A03 (C3847) **\$1,595**



Pioneer DVR-A03 PRO PACK

This is designed for the video enthusiast and contains all the same goodies as the DVR-A03 plus ReelDVD Professional Authoring Software (Version 2.5) by Sonic Solutions and "DVD Production and Authoring" book by Ralph La Barge (retail value over \$2,000 for these additions).

DVR-A03 PRO (D4247) **\$2,319**

Pioneer DVD-R MEDIA

- Jewel Case • Memory-capacity of 4.7GB • Suitable for DVD Video & Data backup
- Playable on both DVD-Video players & DVD-ROM drives • Commercial and Home DVD-Video production • Large sized data archive storage (not for use with Pioneer DVR-S201 authoring drive)



DVS-R470SDF (B9971) **\$22**

DVS-RP470SDF •White printable version (C2322) **\$26**

Pioneer DVD-RW MEDIA

- Rewritable DVD media
- Jewel case
- Memory capacity of 4.7GB: Suitable for DVD video & data (not for use with Pioneer DVR-S201 authoring drive)



DVS-RW470SD (C2326) **\$38**

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Image Capture & CD-R/RW/DVD Drives

Image Capturing Device

CAPLIO RR1

NEW!



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RR-IO
NEW!!!

(C7872) **\$999**

MAJOR FEATURES:

- Micro-sized 2.1 megapixel digital camera
- Ricoh Base for one touch file transfer
- 2x Optical (38-76mm) all glass zoom lens
- 2x Digital zoom
- 8MB SD Memory card included
- LCD monitor
- MP3 AUDIO PLAYback
- USB compatible
- iNcl software, ac adapter, lithium ion battery etc

Enjoy Top Resolution And Flexibility

NEW
PRODUCTS



CAPLIO
RR-I

(D4561)

\$1,799

FEATURES

- 4.1 million pixel CCD
- Output up to 2272 x 1704
- 3 x optical zoom lens
- 3.6 x digital zoom
- Hybrid autofocusing
- Macro to 1cm
- 8MB onboard memory
- Accepts SmartMedia cards to 128MB
- Auto exposure
- Auto exposure bracketing
- Built-in flash with red-eye reduction
- Still mode
- Sound mode
- Motion mode
- Text mode
- Continuous mode
- Optical viewfinder
- 270 degrees 2 inch LCD screen
- Split screen shooting
- In camera cropping
- USB connectivity
- 12 months Australian Warranty

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Media
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Speed
High
Quality



(C7877)
\$19



(C7878)
\$17



(74418)
\$7

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DVD+RW DVD BURNER

FOUR-IN-ONE POWER

- **Writing speed**
(DVD+RW) 2.4x (CD-R) 2x, 4x, 8x, 12x(CD-RW) 2x, 4x, 10x*2
- **Reading speed**
(DVD-ROM/DVD+ RW) Max. 8x(CD-ROM/CD-R/CD-RW) Max. 32x. Average access time (DVD) 140 msec. (8x) (CD) 120 msec. (32x)
- **Data transfer speed**
(at 1 / F) Max. 33MB/sec. (Ultra DMA Mode2)

(D1844) **\$1,495**

- **Writing mode**
(DVD+RW) Random Access Write, Sequential Write
- (CD-R/RW) Disc At Once, Session At Once*, Track At Once, Multi-Session, Packet Write
- **Writing format** (DVD+RW) DVD-ROM, DVD-Video, Random Access Write (CD-R/RW) CD-DA, CD-ROM, CD-ROM XA, CD Extra, CD-I*, Mixed-ModeCD, VideoCD, PhotoCD*, CD TEXT, Bootable CD

MP5120A

- 20x Record
- 10x ReWrite
- 40x Read
- 12x DVD Read
- 2MB Buffer
- Internal Type ATAPI
- S/PDIF terminal for digital audio output
- Anti-dust, low power consumption design
- B's Recorder GOLD - Mastering software

MP9200A

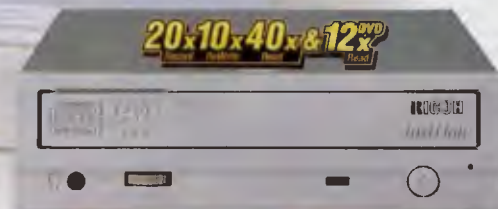
- Included:
 - B's Clip - UDF packet writing software
 - Drag 'n Drop CD - Writing software
 - WinDVD - DVD Video playback software included
 - Ricoh CD-R & CD-RW disc
 - Setup Manual
 - One Year Ricoh Australia Warranty

(C7876) **\$529**



*2 10x speed CD-RW writing requires High Speed CD-RW media, and DVD-RAM media

*3 Bundled software does not support this feature



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The Power to Create

PRINTER

EPSON STYLUS C20UX

BONUS USB CABLE (in box)
while stocks last!



The Easy-To-Use Home Colour Printer that gives photo quality printing, and delivers best-in-class for overall cost effectiveness. **KEY FEATURES** • Up to 720 x 720 dpi photo quality printing • Fast, easy set-up and operation • USB equipped for simple plug and play printing • Up to 6.5 ppm black text printing

(C5572) **\$119**

LASER PRINTER

EPSON AL-C2000

EPSON technologies, including AcuLaser Multiple-screen Printing, Colour RIT and Colour Stabilizing. In addition, AcuLaser Colour Halftoning provides print resolution equivalent to 2,400 dpi (defined print resolution: 600dpi). Text is extremely sharp and photos have excellent contrast.

(A7365) **\$4,579**

PRINTER

EPSON STYLUS C60

• 2880 x 720 dpi resolution • Fast 12ppm* for both Black and Colour Text Memo (*at economy mode) • Precise-Super fine detailed printing with up to 2880 dpi, MicroPiezo Print Head and 4pl Variable Sized Droplet Technology • Four-colour ink system.

(D0042) **\$265**

PRINTER

EPSON STYLUS PHOTO895

Outstanding Photographic 6-Colour Quality with Personal Digital Photo Lab Function. • Up to 2880 x 720 dpi photo • Quality printing resolution • PRINT Image Matching™ enabled • USB interface for plug-and-play • Over 20 years lightfastness***

(C9632) **\$695**

SCANNER

EPSON PERFECTION 1250

This new EPSON scanner features resolution and scanning technologies which sets it apart from other scanners in its price class. • 1200 x 2400 dpi optical resolution • 48-bit colour depth (internal) • USB interface for plug-and-play

(C9439) **\$208**

SCANNER

EPSON PERFECTION 1650

Perfection 1650 series offers full auto scanning mode for documents and photos, and the Perfection 1650 Photo, in addition, feature auto batch scanning mode for film and slides, using its film adapter. Scanning • 1600 x 3200 dpi optical resolution • USB interface for plug-and-play

(C9387) **\$358**

PRINTER

EPSON STYLUS C40SX/C40UX

The Easy to use Quality Home Colour Printer with up to 1440 dpi. **KEY FEATURES** • Up to 1440 x 720 dpi photo Quality printing. • Fast, easy set-up and operation of both models. • Choice of USB or Parallel models, simple plug and play printing. • 8ppm black text speed and 3.9 ppm colour text speed.

C40SX (Parallel) (C5574) **\$162**

C40UX (USB) (C5573) **\$165**

PRINTER

EPSON STYLUS PHOTO810

• On-demand Inkjet (piezoelectric) • 48 x 6 nozzles • Black text (memo) A4 Approx. 12ppm (Economy) • full page colour A4 Approx. 1.4ppm (Normal)* • USB compatible • Colour: Cyan, Magenta, Yellow, Light Cyan, Light Magenta • DRIVERS Microsoft® Windows® 95/98/2000/Me/NT® 4.0.

(C9372) **\$369**

PRINTER

EPSON STYLUS C80

• Up to 20 ppm* for black text • Constant monitoring of ink consumption with the Intellidrive™ ink system in each of the four ink cartridges • Pigment inks for prints that are fade-, water- and smudge-resistant • Super fine printing with up to 2880 dpi.

(D1665) **\$585**

PRINTER

EPSON STYLUS COLOR1160

• Printing method - On-demand inkjet (piezoelectric) • Nozzle configuration - 144 nozzles (Black), 48 x 3 nozzles (Cyan, Magenta, Yellow) • Print direction - Bi-directional with logic seeking • Resolution - 1440 x 720 dpi • A3 Compatible.

(87723) **\$582**

SCANNER

EPSON EXPRESSION 1640XL

The Expression 1640XL A3+ scanner features EPSON's most advanced scanning technologies providing high speed, maximum detail and superior sharpness and clarity.

(B1330) **\$5,643**

LASER PRINTER

EPSON EPL 5800

The EPL-5800 Laser Printer is an excellent solution for small work groups, offering best-in-class features at a very attractive price: • True 1200 dpi • Fast 10ppm print mode • 16MB • Network ready • optional 10/100 BaseT Network Card • Optional Adobe Postscript 3 for high quality imaging and performance.

(A0812) **\$658**

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- Extend to a total of 3 Years Return to Base
- Extend to a total of 5 Years Return to Base
- Upgrade Return to Base of Warranty Extension to On-Site

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What today's CAD designers want



AutoCAD LT 2002

AutoCAD LT® 2002 is the only 2D CAD program providing 100 percent DWG compatibility with AutoCAD® 2002 based products. That means you can open, edit, and exchange drawing files (DWG) with complete confidence. A comprehensive Internet toolset streamlines collaboration between design team members, shortening cycle times and reducing costs. Plus new enhancements like automated associative dimensioning help you create quality designs

more efficiently. AutoCAD LT® 2002. Connected. Collaborative. And powerfully 2D.

AutoCAD LT® upgrades are also available, however AutoCAD LT® 98 will no longer be upgradable after the 15th of January 2002. Protect your investment by upgrading now.

(C4282) UPGRADE **\$365** (C4281) **\$1,355**



AutoCAD 2002

With AutoCAD® 2002, you can get your design information where it's needed—quickly, easily, and accurately. Its design collaboration tools help you maximize the value of your design data by sharing files, accessing design resources, and meeting in real time with the entire project team. With powerful features such as CAD standard management tools, associative dimensioning, new Object snaps, 3D Orbit and more, AutoCAD® 2002 will help you create quality designs more efficiently

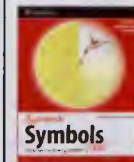
giving you that strategic competitive advantage.

Protect your investment by upgrading your AutoCAD® Release 14 before 15th January 2002. Upgrades also available for AutoCAD® 2000 and AutoCAD® 2000i. Call for pricing.

(C7856) **\$7,199**

Symbols 2000

Architectural



(A1319)

\$149

Symbols 2000

Engineering



(A1320)

\$149

AutoSketch 7

(C4386) **\$185**

From concept sketches, information graphics, and floor layouts to presentations, electrical drawings, and home project plans, you can draw it - quickly and accurately - with AutoSketch® Release 7 software.



QuickCAD 8

(D5996) **\$Call**

Begin designing on a computer right away with QuickCAD™ 8. Plenty of productive features let you make technical designs and diagrams, and you can start drawing the very first time you use it.



QuickCAD

Prices are subject to change. Check here for latest prices & products!!

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Quantum

Simple, Robust and Cost-effective Network Storage

Snap Servers

Quantum Snap Servers are the easy alternative to File Servers, for Windows PC's and Macs. Installed and working in around 5 minutes, means that you just plug in and start working with no downtime. Snap supports all standard network types including, NT, Novell, Mac and Linux simultaneously with no license worries.

- Installs in minutes
- Less Maintenance
- Higher reliability
- the right capacity to suite your needs



- 40GB (C0035) **\$1,499**
Rent* \$21.90/wk
- 80GB (D1206) **\$2,245**
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- 160GB (D1208) **\$4,099**
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- 240GB (A8119) **\$7,599**
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hp designjets

hp designjet 50ps, 20ps & 10ps

Affordable and productive

Consumables


Paper & Inks available for the designjet printer range



Pre-press proofing solution

RES: up to 2400x1200dpi
 SPEED: A3+ print outs can be generated at a super fast speed of up to 4 mpp
 INK: 6-ink modular cartridge systems with four 69ml (cmk) and two 28ml cartridges that help minimise printer down time and reduce cost per print
 RIP: stand alone or server based RIP optimises your system's resources
 PAPER: up to A3

hp designjet 50ps

| | Rent* /wk | Part # | |
|-----------------------|-----------|---------|----------------|
| Professional solution | \$62.98 | (C8933) | \$7,259 |

A3+ graphics colour thermal injetprinter

hp designjet 20ps

| | | | |
|---------------------|---------|---------|----------------|
| Work group solution | \$36.43 | (C8932) | \$3,898 |
|---------------------|---------|---------|----------------|

A3+ graphics colour thermal injetprinter

hp designjet 10ps

| | | | |
|-------------------|---------|---------|----------------|
| Personal Solution | \$26.46 | (C8931) | \$2,698 |
|-------------------|---------|---------|----------------|

A3+ graphics colour thermal injetprinter

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- ☐ Extend to a total of 5 Years Return to Base
- ☐ Upgrade Return to Base of Warranty Extension to On-Site

hp designjet 800

Professional graphics printer wide photo quality ads and graphics



hp 800PS 42"

hp 800PS 24"

RES: 2400x1200dpi
 SPEED: Line drawing prints times as short as 60 seconds (D size 24-36inches)
 Colour Image Fast: 7.9m²/hour Normal: 3.34m²/hour Best: 1.95m²/hour
 MEDIA: Coated & glossy paper, technical media. Sheet & roll feed, auto cutter
 SIZES: Sheet: 211mm - 1897mm ; Roll: 24" (w) x 45.7m (l)
 I/FACE: Parallel, USB
 SIZE: Printer in 2 sizes 42 or 24 Inches wide

hp designjet 800 24"

| | Rent* /wk | Part # | |
|----------------------|-----------|---------|-----------------|
| hp designjet 800 24" | \$88.37 | (B8514) | \$10,350 |

hp designjet 800PS 24"

| | | | |
|------------------------|----------|---------|-----------------|
| hp designjet 800PS 24" | \$122.22 | (B8518) | \$14,920 |
|------------------------|----------|---------|-----------------|

hp designjet 800 42"

| | | | |
|----------------------|---------|---------|-----------------|
| hp designjet 800 42" | \$99.93 | (B8513) | \$12,199 |
|----------------------|---------|---------|-----------------|

hp designjet 800PS 42"

| | | | |
|------------------------|----------|---------|-----------------|
| hp designjet 800PS 42" | \$139.00 | (B8519) | \$17,210 |
|------------------------|----------|---------|-----------------|

hp designjet 5000

Professional graphics printer photo quality unmatched by any other printer

Come in & see one on display @ our Nth Ryde Location!



hp 5000PS 60

hp 5000PS 42"

RES: 1200x600dpi on glossy media (6 colours:CMYKcm)
 SPEED: max: 46.4 sq m²/hr, (42" dye/uv)
 max: 52.9 sq m²/hr, (60-inch dye/uv)
 MEDIA: Coated & glossy paper, backlit, opaque, vinyl, canvas...
 SIZES: Sheet: 211mm- 914mm (w) x 559- 1600mm (l);
 Roll: 24/36/42/54/60" (w), up to 91.4m (l)
 I/FACE: Parallel, hp JetDirect 610N 10/100 Base TX Print Server
 SIZE: Printer in 2 sizes 42 or 60 Inches wide

hp designjet 5000 42"

| | Rent* /wk | Part # | |
|-----------------------|-----------|---------|-----------------|
| hp designjet 5000 42" | \$169.26 | (B6514) | \$20,956 |

hp designjet 5000PS 42"

| | | | |
|-------------------------|----------|---------|-----------------|
| hp designjet 5000PS 42" | \$222.30 | (B9792) | \$27,526 |
|-------------------------|----------|---------|-----------------|

hp designjet 5000 60"

| | | | |
|-----------------------|--------|---------|-----------------|
| hp designjet 5000 60" | \$Call | (B6515) | \$33,417 |
|-----------------------|--------|---------|-----------------|

hp designjet 5000PS 60"

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| hp designjet 5000PS 60" | \$Call | (B9791) | \$41,230 |
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hp LaserJet printers

hp LaserJet 1000 Series

Designed for personal printing in entrepreneurial business, home business and telecommuters who challenged by multitude of printing needs, the hp LaserJet 1000 printer is a simple, low-cost, reliable laser printer for fundamental printing, delivering professional looking business documents every time.



- 10 ppm • hp exclusive instant-on fuser eliminates warm-up time; first page out in 15 seconds • USB port • 48 MHz RISC processor • 7,000 pages per-month duty cycle • 1 MB RAM memory, 32KB ROM memory.

hp LaserJet 1000 USB

(C9361) **\$585**

hp LaserJet 1200 Series

hp LaserJet 1200 (base unit) (B9799) **\$765**

hp LaserJet 1200n-16MB (B9958) **\$1,295**

- 14 ppm A4 (best-in-class) and first page out in less than 10 seconds
- increased memory of 8MB of RAM (upgradable to 72 MB) • protected 250-sheet input tray and 10-sheet priority feed tray • improved 10,000 pages monthly duty cycle • instant-on-fuser eliminates warm up time.



hp LaserJet 1220 (B9968) **\$925**

You can now enjoy the comfort of printing, colour scanning and copying from one machine with the copier/scanner attachment for your hp LaserJet 1200. Beside enjoying all the best-in-class printing capabilities of the hp LaserJet 1200, you can now take control of your document management with the added benefit of colour scanning and copying.

hp LaserJet 4550 Series



hp colour LaserJet 4550 A4 16PPM 64Mb (B2381)

\$3,944

hp colour LaserJet 4550N A4 16PPM 64Mb 10/100 (B2382)

\$4,469

hp LaserJet 2200 Series



- Improved productivity with faster printing at 18 ppm A4 • best printing resolution of true 1200 x 1200dpi at full speed • quicker return to application with 133 MHz processor • first page out in 15 seconds with instant on-fuser • print large and complex documents quickly and easily with 8 MB of standard memory (16 MB memory on hp LaserJet 2200dtn: - expandable up to 48 MB 2200D/DN: memory expansion up to 72MB • increased duty cycle to 40,000/month.
- LJ2200 model (no duplexer built in for double sided printing)



hp LaserJet 2200d (base unit) (B9956) **\$1,537**

hp LaserJet 2200dn (B9957) **\$2,045**

hp LaserJet 2200dtn (B9898) **\$2,585**

hp LaserJet 4100 Printer

- Super fast printing at 24ppm A4 print
- 250MHz processor ensures quicker return to application • complex documents print faster with 16MB/32MB memory • 12 second first page out • HP Pro-Res & FastRes 1200 dpi print quality at full speed • dynamic RIP- once for faster processing of multiple original prints • duty cycle of 150,000 pages/month



hp LaserJet 4100 (base unit) (B8399) **\$2,235**

hp LaserJet 4100n (B8400) **\$2,979**

hp LaserJet 4100tn (B8401) **\$3,459**

hp LaserJet 4100dtn (B8402) **\$3,990**

hp LaserJet 3200 Series

Printer, Fax, Copier & Scanner! An ideal business solution for small office, home office (SOHO), small/medium business and top level executives, the hp LaserJet 3200 series is four machines in one. Print, fax copy and scan from one machine and it only occupies 1.6 sq. ft. of your desk space!

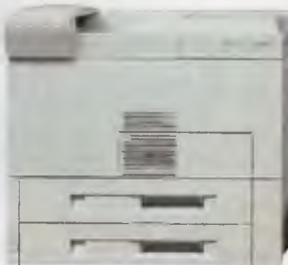


hp LaserJet 3200 (C2332) **\$1,349**

hp LaserJet 3200M (C4456) **\$1,550**

hp LaserJet 8150 Series

The new HP LaserJet 8150 series is designed to grow with your business and its needs. It delivers high-volume, high-speed black and white prints and copies for small workgroups to large departments. • Fast printing at A4: 32 ppm; 32 MB RAM (expandable to 160 MB); 250MHz processor.



hp LaserJet 8150 (B1981) **\$4,369**

hp LaserJet 8150N (B1986) **\$5,098**

hp LaserJet 8150DN (B1982) **\$5,795**

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hp officejets & deskjets

hp officejet T65

All In One Scanner/Printer/Fax/Copier

- Up to 11ppm mono and 8.5ppm colour
- 75 page memory
- Colour fax capability
- 100 speed dials with 10 one-touch keys
- junk fax barrier, 20 group speed dials fax forwarding
- Colour scanning - 300 x 600dpi optical, up to 1200dpi enhanced 24 bit colour
- walk-up colour copy.



(84893) **\$349**

hp PSC 750



Printer-scanner-copier

Ideal for: Busy families that need convenience and quality Savvy users with limited work space Students who want to get creative with cards, newsletters and more benefits: Make quick color copies at home from 3x5 inches up to 8.5 x 14 inches Scan your favorite snapshot to e-mail friends and family Print on photo paper to put in your photo album



(C7655) **\$639**

hp officejet K80

Ideal for: Photographers needing photo-quality prints on any paper Small offices looking to share faxing, copying, and printing responsibilities Office managers looking for a compact, cost-effective office solution



- Features**
- colour speed 10 ppm colour
 - black speed 12 ppm black
 - print technology HP Photo RET III technology (color layering technology)
 - scanner enhanced resolution 3600 dpi
 - scanner bit depth 36-bit A/D colour.

(B2081) **\$799**

hp officejet G85

All Colour: Printer, Copier, Scanner & Fax Prints at up to 12 ppm black, 10 ppm color using HP photoRET 3 Precision Technology. 2400 x 1200dpi colour, as well as flatbed 36-bit scanning, faster copying speeds, and upgradeable networking capability which allows one unit to be shared by several PCs. Each model combines a color printer, scanner, copier and a walk-up color fax.



(A0062) **\$1,160**

hp deskjet 960c



HP's smart photo-quality colour printer

- HP's smart photo-quality colour printer premium photo quality
- get the best photo-quality with HP PhotoRET 3 colour layering technology
- up to 2400 x 1200 dpi
- prints up to 15 ppm black & 12 ppm colour
- 150-sheet paper tray



(D3918) **\$429**

hp deskjet 948c



Explore your creativity and print photos easily with HP's premium photo-quality colour printer

- up to 2400 x 1200 dpi
- optional automatic two-sided printing
- space-saving fold-up paper tray
- best photo-quality with HP PhotoRET 3
- parallel and USB connectivity
- USB-connect Macintosh
- prints up to 12 ppm black and 10 ppm colour



(D3927) **\$299^{RRP}**

hp deskjet 845



Step up to HP's photo-quality printer that gives you true-to-original colours brilliant

- crisp black text and photo-quality images
- up to 600 x 1200 dpi
- no swapping ink cartridges to print outstanding photo-quality colour
- ideal for work and other creative projects
- prints up to 8 ppm black and 5 ppm colour
- USB connectivity for



(D3921) **\$169**

hp deskjet 656c



Add colours to your life with HP's easyand affordable colour printer

- HP reliability at a great price
- prints up to 6 ppm black and 3 ppm colour
- perfect for printing email, internet information and basic colour graphics
- compact with fold-up paper tray
- USB connectivity for PC



(D3922) **\$127**

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- ☐ Extend to a total of 5 Years Return to Base
- ☐ Upgrade Return to Base of Warranty Extension to On-Site

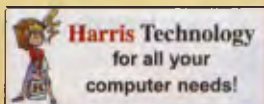
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hp scanjets & consumables

hp scanjet 4400c

hp's exclusive scanning software automatically optimises scanned photos, converts black-and-white line art into infinitely scalable vector files and automatically creates editable text from scanned documents with a simple drag-and-drop, copy and paste or scan to. If you want the flexibility to adjust scanned images on your own, you can do that, too.



(C5904) **\$259**

hp scanjet 5470c

Superior scans at a touch
High-performance, 2400 dpi scanner for professional use.
Image resolution up to 2400 dpi with true 48-bit colour • hp's exclusive dual sensor CCD (charge coupled device) technology brings you exceptional crisp and sharp scans up to 2400 dpi resolution • true 48-bit colour depth delivers true-to-original, colour-rich images • no compromise on speed with preview scans in as little as 8 seconds • Transparency adapter for slides also included.

NEW
lighted
transparency
adapter



(C7652) **\$529**

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colour scanners

scan speed

image quality

scanning software

Part No

Price

hp scanjet 2200 18 seconds 600 dpi optical precisionscan LTX (C5896) **\$169**

hp scanjet 5400 08 seconds 2400 dpi optical precisionscan pro 3.0 (C7201) **\$395**

hp scanjet 7400 04 seconds 2400 dpi optical precisionscan pro 3.0 (B9949) **\$979**

hp scanjet 7450 04 seconds 2400 dpi optical precisionscan pro 3.0 (C1561) **\$1,429**

toner

paper

ink cartridges

hp Laserjet C7115A

Ultraprecise print cartridge for HP LaserJet 1200/1220 series

(C0936) **\$138**

hp C4096A HP LaserJet

2100/2200 Series 5,000 Page Toner

(73192) **\$210**

hp C4192A HP 4500

Cyan Toner Cartridge 6000 page

(70439) **\$257**
(cyan & magenta also available)

hp C4182X HP LaserJet

8100 Series 20,000 Page Toner

(70461) **\$385**

hp C4127X HP LaserJet

4000 Series 10,000 Page Toner

(54731) **\$259**

hp 10x15cm Premium

Plus Photo Paper Glossy - 20 Sheets

(84905) **\$19**

hp A4 Premium Photo

Paper - 15 sheets

(54010) **\$19**

hp A3 Premium Photo

Paper Size - 20 Sheets

(58635) **\$59**

hp Iron On T-shirt

Transfers A4 10 pages

(52818) **\$26**

hp HeavyWeight InkJet

(European A4, 100 sheets)

(54009) **\$29**

hp ColourFast Photo

Paper T3 A4 glossy

(20 sheets) (C6528) **\$46**

No 29 Black inkjet Cartridge

(21919) **\$69**

No 78 Tri-Colour Inkjet print

Cartridge (86183) **\$79**

No 20 Black print Cartridge

(A3302) **\$59**

No10 Black Ink Cartridge

Designjet 500 (70165) **\$79**

No 45 Black inkjet Cartridge

(22643) **\$69**

No10 Magenta Ink Cartridge

(70167) **\$79**

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UP TO 15 PPM BLACK / 10 PPM COLOUR!

SENSATIONAL \$600 BUBBLEJET PRINTER

I can...
You can...

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(C4013) **\$492**

- ◆ 8" x 10" photo in approx. 90 seconds
- ◆ Four individual ink tanks with low-ink sensor
- ◆ 2400 x 1200 dpi in color (38% greater than 2880 x 720 dpi)
- ◆ Advanced MicroFine Droplet Technology™ for photo-image quality
- ◆ Compatibility: Windows® 95/98/2000, Windows NT® 4.0, Windows Me



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PRINTERS



720x360dpi
(A1792) **\$109**

BJC-1000SP Bubble Jet Printer

- ◆ Outstanding operating economy.
- ◆ Vivid colours, even on plain paper.
- ◆ Exceptional photographic quality.
- ◆ Automatic image improvement.
- ◆ Banner printing and outstanding versatility.



360x720dpi
(A3173) **\$159**

BJC-2100SP Bubble Jet Printer

- ◆ New Super Economy mode cuts operating costs by up to 75%.
- ◆ High speed printing, up to 5 ppm black text and up to 2 ppm colour.
- ◆ Optional colour scanner.
- ◆ Now with parallel port.



1440 X 720dpi
(D1745) **\$235**

S400SP Bubble Jet Printer

- ◆ Super-high resolution, up to 1440 x 720 dpi.
- ◆ Brilliant colour inks.
- ◆ Operating economy.
- ◆ Extraordinary photo printing.
- ◆ Optional colour scanner cartridge IS-32.



(C4023) **\$259**

S300 Colour Bubble Jet™ Printer

- ◆ Up to 11 black and white and 7.5 Colour pages per minute
- ◆ Up to 2400 x 1200dpi print resolution
- ◆ separate black and tri-colour ink tanks
- ◆ USB Interface for Windows and Mac
- ◆ Compact footprint - ideal for the home office
- ◆ Colour lasts up to 25 years using Canon's Photo Paper Pro



2400x1200dpi.
(B3836) **\$558**

S800 Bubble Jet Printer

- ◆ Photo Lab printing for the desktop.
- ◆ Printing resolutions up to 2400 x 1200 dpi.
- ◆ Separate ink tanks for each colour.
- ◆ Includes Photo Optimiser Pro and Photo Record image browser software.



600x600dpi.
(C3917) **\$498**

LBP810 Printer

- ◆ High resolution 600 dpi printing for crisp text and graphics.
- ◆ 8 ppm engine speed.
- ◆ Wide media compatibility, print transparencies, envelopes, postcards etc.
- ◆ Outstanding line definition - equivalent to 2400 dpi horizontally.
- ◆ Parallel & USB connections for wide compatibility.

SCANNERS



600x1200 dpi
(D4026) **\$135**

N640Pex Flatbed Scanner

- ◆ Optical resolution is 600 by 1200 dpi
- ◆ 42-bit input
- ◆ Only 4 cm tall
- ◆ Parallel interface
- ◆ Scans up to A4 size (Quiet operation)
- ◆ Complete software package, LIDE Technology



600 x 1200 dpi.
(D1005) **\$172**

N670U Flatbed Scanner

- ◆ One touch scan controls
- ◆ USB Interface
- ◆ 600 x 1200 dpi
- ◆ Scan, click and burn photos onto CD's.
- ◆ Advanced Z-Lid cover simplifies scanning of bulky items, books and magazines.



1200x2400dpi.
(C7589) **\$274**

N1240U Flatbed Scanner

- ◆ Amazing 1200 x 2400dpi optical with selectable resolution up to 9600dpi.
- ◆ Stylish charcoal and aluminium finish.
- ◆ New Z-lid for scanning thick books etc.
- ◆ Software for Windows & Mac including OmniPage and PhotoShop Elements.



1200x2400dpi.
(B9935) **\$379**

CanoScan D1230U Flatbed Scanner

- ◆ A4 1200x2400dpi flatbed scanner - optional 1200x2400dpi film scanning.
- ◆ Fast one pass USB scanning.
- ◆ Stylish charcoal grey and aluminium design.
- ◆ Includes Adobe PhotoShop 5.0LE & OmniPage OCR software for Win. and Mac.



2400x4800dpi.
(B9840) **\$755**

CanoScan D2400UF Flatbed Scanner

- ◆ Optical resolution of 2400 x 4800 dpi.
- ◆ Film adaptor lid - for accurate scanning of 35mm, 2 1/4" and 4"x5" film.
- ◆ Outstanding colour accuracy.
- ◆ Ideal for professional studios, graphics and design bureaux.

PowerShot A10 DIGITAL CAMERA



(C3968)

\$685

PowerShot A20 DIGITAL CAMERA



(C3864)

\$874

PowerShot DIGITAL IXUS-V



(C5389)

\$1,039

PowerShot DIGITAL IXUS 300



(C5653)

\$1,245

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DV CONVERTER

Convert your analogue tapes (S-VHS, Hi8 & 8mm) to DV (Digital) in one simple step!

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(D4514) **\$699**



(D6096) **\$1,949**

(With DVRAPTOR-RT & Adobe Premiere 6.0)

REAL TIME PRODUCTS

FOR REAL EDITORS...

Featuring multiple video tracks, filters, transitions, titles and analogue output. Create DVDs, SVCDs, VCDs and Web streaming.

DVRAPTOR-RT

FOR EXISTING
ADOBE PREMIERE 6.0 USERS
(C5577)

DVSTORM SE
(C9352)

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HAUPPAUGE PVR USB
(D1776) **\$635**

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(B2593) **\$669**

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LEXMARK Z33



(C9441) **\$165**

Lexmark Z53 Color Jetprinter

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LEXMARK Z53



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Lexmark NEW 'All-In-One' High resolution printing, scanning and copying.

Both the Lexmark X73 and X83 deliver 2400 x 1200 dpi photo quality printing and 600 x 1200 dpi optical scan resolution with 48 bit colour depth. Up to 12ppm mono and 6ppm colour printing on the X83 and up to 9ppm mono and 5ppm colour printing on the X73.

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LEXMARK X73

LEXMARK X83



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(D1202) **\$545**

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from: 10 users

(C4380) **\$677**

LANGUARD

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LANGUARD for ISA Server helps you protect against the huge security risk posed by HTTP and FTP access from the workplace. Built on top of Microsoft ISA server, it scans all inbound material for viruses, Trojans or objectionable material. Using LANGUARD's powerful rules engine, you can configure rule sets that allow you to quarantine dangerous files for administrator approval.

LANGUARD also enables you to set up rules that can prevent unproductive use of the Internet at the workplace.

from: 25 users

(C4366) **\$765**

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from: 5 User Workstations

(C9889) **\$265**

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(C9237) **\$859**
UPGRADE (C9239) **\$485**

Painter 7
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(D3901) **\$674**

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(D1534) **\$395**



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(C5869) **\$689**
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UPGRADE (C3602) **\$349**
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UPGRADE (B1162) **\$594**

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(A8640) **\$269**

Dragon NaturallySpeaking

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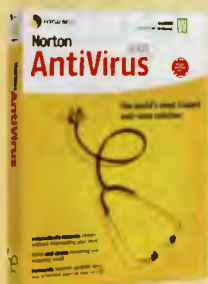
dictation. The included Dragon NaturallySpeaking referred software is a full featured highly accurate, easy-to-use speech recognition product focused on creating and editing text documents.

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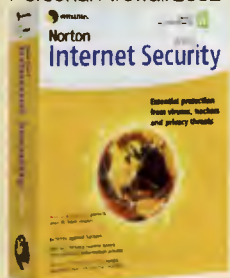


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5 User (D3475)
\$259
(C9612)
\$85

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(D0219)
\$115

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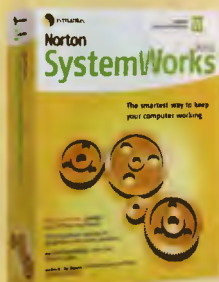


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(D0220)
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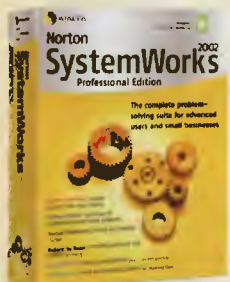


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READY!**

(D0787)
\$122

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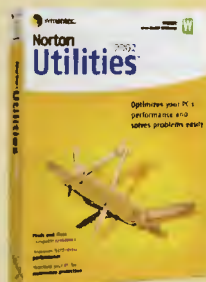


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READY!**

(D0680)
\$159

Norton Utilities 2002

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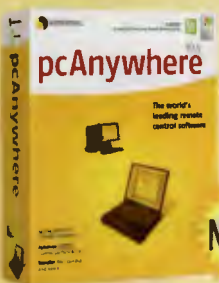


**Windows
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(D0667)
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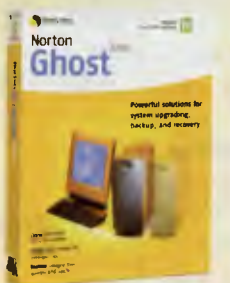


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NEW! (D5935)
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1 User (D0281)
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(D4303)

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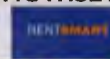
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(C7805) **\$739**



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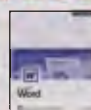
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 **Christmas Greetings from the staff at
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Hello and welcome to our "jam packed" December/January Buyers Guide. May I take this opportunity to wish all our customers a happy and safe Christmas. As you will see, this issue is packed full with great Christmas and holiday gift ideas together with the best new releases. For some great Microsoft keyboard and joystick/gamepad specials check out the back page. Plus, Microsoft and Fisher-Price have some great games and educational products on offer for Christmas and the holiday period on pages 4 and 5.

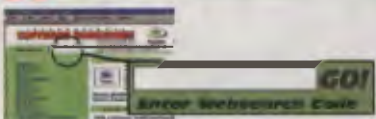
Once again Symantec are offering a fantastic promotion leading up to Christmas (see pages 26-27). They have partnered with Universal Pictures and ourselves to provide you with FREE popular movie titles via redemption when purchasing selected Symantec product until 31 December 2001. Videos and DVDs on offer include Antz, Highlander, Lock Stock & Two Smoking Barrels, Chicken Run or Notting Hill (Conditions apply).

It is also a great time to get your personal finances in order coming into the new year. Our friends at Quicken have released their 2002 range of Personal products. This time round they have completely re-written the code so improvements are in "leaps and bounds" with this new version. Also, for a limited time when you purchase Quicken Personal Plus 2002, you will receive a FREE copy of Quicken ShareAnalyser (Conditions apply). So don't waste time in shopping centres leading up to Christmas. Check out the following pages for great Christmas and holiday gift ideas. And remember, we are always striving harder to offer you the fastest delivery with the most reliable and friendly service at the best price in Australia.



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Microsoft

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Hardware Requirements

| | |
|---------------|---|
| Hardware: | PC with 300 MHz or higher processor clock speed recommended; 233MHz minimum required** |
| Memory: | 128 MB of RAM or higher recommended (64 MB minimum supported; may limit performance and some features) |
| Hard Disk: | 1.5 GB of available hard-disk space**
CD-ROM or DVD-ROM, CD-ROM or DVD drive |
| Input Device: | Keyboard and Microsoft Mouse or compatible pointing device |
| Multimedia: | For sound: Sound card and speakers or headphones. For DVD video playback: DVD drive and DVD decoder card or DVD decoder software & 8 MB of video RAM. For Windows Movie Maker: Video capture feature requires appropriate digital or analog video capture device & 400 MHz or higher processor for digital video camera capture |

Can you upgrade?

Windows XP

| | Home | Professional |
|-------------------------|------|--------------|
| Previous Version | | |
| Windows 98 | y | y |
| Windows 98 SE | y | y |
| Windows Me | y | y |
| NT 4.0 Wks SP5 | n | y |
| Windows 2000 Pro | n | y |

Other operating systems not shown will **not** upgrade to Windows XP Home or Professional Editions



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- No conflicts with Firewalls or Routers
- Supports Up to 10 PCs

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BEST PRODUCT: ESOLUTIONS - Gartner Award, 2001
BEST NEW INTERNET HARDWARE - Latin Channel, 2001
BEST HARDWARE - Latin Channel, 2001

ALPHA SHIELD

Kodak DC3200 Digital Camera

In a snap, the DC3200 captures all of life's special moments, no matter how big or small. It's perfect for those who cherish memory-making as much as memory-sharing. Easy Sharing. Spread the joy and share your pictures in e-mails and with great-looking prints. With the DC3200, it's easier than ever to stay in touch with friends and family. Great Pictures. The DC3200 Digital Camera with its 1.0 MP resolution makes great prints up to 5" x 7". Get Close. With the DC3200's 2X digital zoom, you can get the shot you want with the touch of a button. Internal Memory. You won't miss a shot. With its 2MB internal memory and COMPACTFLASH Card compatibility, you can keep shooting longer. Preview and Review Your Pictures. See what you shot in an instant with the built-in LCD screen. With the DC3200, you'll know if the picture is a keeper.



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\$299.00**

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CorelDRAW 10

CorelDRAW 10 is professional layout and illustration software specifically designed for Mac OS X. With a wide range of content creation tools, innovative vector and raster effects, high-end output and colour management features, and Web capabilities, it integrates into the professional's workflow with ease.



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What will you make of it?
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- Photo Paint 10
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Backed by a decade of award-winning creative power. Delivers vector illustration, layout, bitmap creation, image-editing, painting and animation software, all in one package. Simplify the design process - whether you're creating for print or for the Web.



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WordPerfect® Office 2002 - Professional Edition. Includes advanced word processing, spreadsheets, presentations, an e-mail client and address book, Paradox 10 and Dragon Speech Recognition Software.



Upgrade
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Corel PHOTO-PAINT 10

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Create amazing special effects once thought virtually impossible. Create dramatic transformations and stunning new illustrations quickly and intuitively with plug-ins such as 3D Transform, ShatterBox, ShadowLand, WarpFrame and more. Includes over a dozen plug-ins to dramatically extend the creative possibilities of your work.



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KPT® 5

The No. 1 Photoshop®-Compatible Plug-Ins
Explore fantastic textures, vast fractal vistas, complex 3D objects and endless new permutations of radical image-altering algorithms with KPT® 5, a premier collection of plug-in software tools for Adobe Photoshop and compatible host applications.



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The No. 1 Plug-In Series for Adobe® Photoshop®
KPT® 6 is an extraordinary collection of image filters that produce unlimited, spectacular effects for print and the Web. KPT 6 includes 10 plug-ins that extend and enhance the creative possibilities of Adobe Photoshop and compatible products.



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KPT effects

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KnockOut 2

Part of the procreate™ line of software, KnockOut 2 lets you preserve fine image details that were once impossible to mask precisely. It's an ideal plug-in for Adobe® Photoshop®, speeding up the design process and helping you capture complex imagery such as hair, smoke, shadows, glass, liquid and ice.

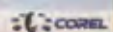


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Websearch Code...COR600



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Corel Office & 1 Professional
Corel Draw 10
Corel Painter 9.0 Developer Edition
Corel WordPerfect Office 2002
Corel Bryce 5.0
MAC Corel Drawing Suite 10
Corel KnockOut KPT Effects
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Corel Web Master Suite
Corel Version 8.0



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EVERYTHING FOR YOUR PC - DELIVERED AUSTRALIA WIDE



THE POWER TO BURN



Iomega CD-RW 24x10x40 Internal

Now available in 24x10x40, Iomega ZipCD Internal drive is the ideal way to store, share and archive information in a common 650MB format. Adding a ZipCD to your PC gives an added 650MB of removable capacity, so you can save and share Internet downloads, games, music, photos and much more. The ZipCD reads, writes and rewrites to a range of CD formats and with the proven reliability of the Zip brand.

\$415.00

Websearch Code....IOM165

NEW



SONY Int 16x10x40 IDE CD-RW Retail Kit

Combines 16X recording with the latest High-Speed RW technology; now you can use CD's like large (& fast) floppy/Zip Disks. Easy to install, it features low cost IDE interfacing and is perfect for home or business. Supplied as a kit, it comes complete with cables, media and Adaptec software. Requires 5.25" 1/2 height drive slot & IDE address.

\$279.00

Websearch Code....SONY01



SONY Int 24x10x40 IDE CD-RW Retail Kit

A low cost optical drive with 3-in-1 functionality. Designed to mount in a desktop or tower computer, it will operate as a CD-ROM, CD-Recorder and CD-ReWriter. It comes as a kit complete with everything required for connection & operation on a Windows based PC.

\$445.00

Websearch Code....SONY02

SONY Ext 1394

12x8x32 CD-RW Kit (FireWire)

Combining 12X burning with the latest high performance interfacing. Supplied as a kit, it comes complete with cables, media and Roxio software for Mac & Windows - Roxio CD Creator V4, DirectCD V3 & Toast V4. Hardware (PC): 6 pin 1394/iLink/ FireWire interface, (Mac): Apple G4, Blue & White G3, iBook & iMac DV. (NOTE: Apple FireWire PCI card NOT supported) Software (PC): Win 98, 2K or ME Software (Mac): OS 8.6 or higher, Apple FireWire 2.1 or higher.

\$675.00

Websearch Code....SONY89

RentSmart \$7.40 pw



SONY Int 12x8x32 SCSI CD-RW Retail Kit

The CRX1605 is a professional drive designed for Audio/Video work, incorporating the latest High-Speed R and RW technology and features performance SCSI interfacing. Supplied as a kit, it comes complete with cables, media and Adaptec software. Requires 5.25" 1/2 height drive slot and SCSI card or inbuilt interface (SCSI-II recommended). Software: Roxio CD Creator V4 & DirectCD V3 (CD-ROM) for Microsoft Windows 95, 98, NT, 2K or ME.

\$429.00

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hp 8230e 4x4x6 USB

→ hp 8230e has a very easy to install with a one sheet quick installation guide, a video to provide step-by-step installation assistance and a detailed website to provide additional installation assistance.



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hp CD 16ri series

- Internal EIDE 16x10x40 cd-rewritable drive with HP's Buffer Under Run Prevention technology
- includes powerful and easy-to-use CD creation and music mixing software
- write up to 700 MB to a CD in about 6 minutes

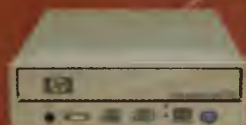


\$345.00

Websearch Code....HPP150

hp DVD 100i

- be the director... use your hp dvd-writer to create your own: home movies, music or photo discs on DVD or CD
- be the critic... watch all of your favorite DVDs
- be secure... your hp dvd-writer allows you to back-up and archive up to 4 GB worth of valuable files - even video or digital home movies - on a DVD+RW disc
- be fast... create DVDs at speeds of up to 2.4x rewrite



\$1449.00

Websearch Code....130939

hp CD 24ri series

- Internal IDE 24x10x40 cd-rewritable drive with HP's Buffer Under Run Prevention technology
- includes powerful and easy-to-use CD creation and music mixing software
- write up to 700 MB to a CD in about 4 minutes



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LaCie FireWire DVD-RAM/R

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Two drives in one: combo DVD-RAM/DVD-R in one drive 9.4GB DVD-RAM/4 7GB DVD-R (writes DVD-RAM and DVD-R media) For PC

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LaCie Pocket CD-RW Compact Disc-Recorder

Designed for people on the move, the LaCie PocketDrive CD-RW is extremely compact and easy to carry.

- Read and write CDs anywhere
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- Hot-pluggable: easily swap among Macs and PCs
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- Autonomous: no need for an AC adapter with self-powered FireWire bus



\$735.00
Websearch Code128559

RentSmart \$8.06 pw

Roxio Toast 5 Titanium For Mac

Creates music, data & video CDs. Toast Includes: CD-ROM with CD Spin Doctor, Qdesign MVP, iView Multimedia, Magic Mouse Discus, Toast Audio Extractor, Roxio Bonus CD with MP3 songs, video clips and 4 short films. User Guide, cable to connect a computer to a stereo system's Lineout.



\$179.00
Websearch CodeATOAST

Nero 5 Burning Rom

Backing up essential folders or entire hard disks has become a necessity today for the safeguard of valuable data. In only 3 easy steps, Nero allows you to back-up partitions or entire hard drives onto several CD's. Using a sector based system, any operating system or file system can be backed-up and restored fully functional and configured.

Fast and user-friendly, the Nero Wizard makes CD recording a real pleasure. Even a first time user can be writing CD's in a matter of minutes, while the more advanced user will appreciate the Wizard's speed. Experience the magic of CD recording without worrying about the details. Nero comes with CD labels and label applicator. Design, print and apply your own CD labels, booklets and inlay cards.



\$135.00
Websearch CodeNER001

LaCie External CD-RW for Mac & PC USB & Firewire in new StudioDrive casing!

The LaCie 8W x 4W x 32r external Firewire and USB CD-RW drive maintains the highest quality and stability at an affordable price. It can be connected to most computers equipped with a USB or Firewire interface. Users of Mac OS or Windows 98/98SE/2000 and ME will benefit from the convenience of the plug & play features, including the freedom to hot-plug the drive while the computer is running, no rebooting is required. Comes complete with cables and software, Toast 4.1 for Mac, Easy CD Creator for Windows.



8x W/ 4x RW/ 32x R
USB 2.0

\$379.00
Websearch CodeLAC028

16x W/ 10x RW/ 40x R
Biproof Ext. FireWire & USB

\$549.00
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RentSmart \$6.02 pw

24x W/ 10x RW/ 40x R
Biproof Ext. FireWire & USB

\$599.00
Websearch CodeLAC027

RentSmart \$6.57 pw

Roxio Easy CD Creator 5 Platinum

Software that goes way beyond the software that came with your CD-Recorder. Now it's easier than ever to create music, photo, video, and data CDs. Access music on the Internet. Fine tune your music tracks. Edit and enhance photos and videos with a pro's touch. Includes: CD with Sound Stream 2, DirectCD, Take Two, Spin Doctor, CD Copier, ideal impression, Photo Album, Video Postcard, VideoCD Creator, CD Label Creator, Sound Editor, Session Selector, Web CheckUp



\$125.00
Websearch CodeEASYCD

Iomega Predator CD-RW Drive

You'll be armed and dangerous with the new Predator CD-RW external drive from Iomega. It gives you cutting edge digital audio and imaging capabilities, as well as great data backup. This stylish, portable device is simple to install and use. And it's simply the best looking external CD-RW on the market, period. Predator comes with a complete suite of FREE software including MusicMatch and Iomega Quik Sync 2, that allows you extreme music fans to create and convert MP3s and rip CD's quickly and easily at drive speeds of 8X/4X/32X*. Let your Predator loose!

\$559.00
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BUSINESS

Capture Data in the stroke of a pen

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Ideal for:

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Lawyers - excerpt legal documents and cite case law while researching legal briefs

Researchers - capture data and information from public records, books, periodicals and case studies

Students - use the QuickLink Pen as an 'electronic highlighter' at the library and in lectures

Features:

- Capture printed data, transmit it to your mobile phone and fax it or send it as an SMS message
- Collect URLs and transfer them directly to your favourite browser
- Transfer printed tables, schedules and charts directly to any spreadsheet application including MS Excel.



QuickLink

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When your customers call, they deserve the most personal attention. With ACT!, you can keep a complete history of every conversation, every activity - even meeting notes. Even attach proposals, emails, faxes, or memos right to their records so you'll be completely and instantly informed when they call.

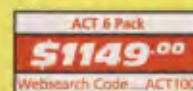
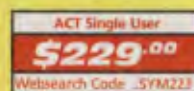
Keep important details from slipping through the cracks

See all of your appointments and tasks in a daily, weekly, or monthly calendar format. Then save information like driving directions and meeting agendas right to an appointment on your calendar. Set reminders and print your calendar - and you'll never forget a thing!

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power. control. reliability.



For Windows 95/98/Me



For Windows NT/2000

What if YOU lost EVERYTHING?

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Backup NOW! is the most convenient and reliable way to backup all your important files to CD-R or CD-RW. Supporting a powerful array of options from full system backup to specific file backup, it is the perfect value addition to your existing or new CD Recording Bundle. With Backup NOW!, you can:

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- Span multiple discs for large backups
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- Automatic Scheduler for unattended backup.
- Backup in-use system files, hidden files, and even the Windows Registry!



NTI CD-Maker 5.0 Professional



For Windows 95/98/ME/NT/2000/XP

CD-Maker 2000 delivers a comprehensive package that will serve all your audio, data, & video CD burning needs. Containing all the features of its predecessor, it includes an advanced feature set such as:

- Live Audio for real-time recording to CD
- Unlimited MP3 Encoding: Rip your CD's into MP3's
- Video CD Mastering
- Audio CD Text Support (supported drives only)
- "NTI JewelCase Maker" for creative design of CD Labels and Jewelcase Inserts
- "NTI Music Cafe" for digital audio playback, on-line CD database, and playlist management

One of the features of CD-Maker 2000 that's got everyone buzzing is its revolutionary LIVE Audio capabilities. With LIVE Audio, you can record ANY sound from the line-in or mic connectors of your sound card, and burn it REAL-TIME to CD. This is perfect for dictation, live music recording, or anywhere where you want to instantly burn sound to a CD. For you budding DJ's out there, you can even mix sound in REAL-TIME from multiple input sources.



Quicken Personal 2002

Quicken Personal 2002 is the easiest way ever to manage your personal finances. Developed for Australia, Quicken Personal is the world's best selling financial management software making it very quick and easy to:

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HOT PRICE

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*Offer valid till 31/3/2000.

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Designed especially for small and medium businesses with double entry accounting needs, QuickBooks is GST Easy, to simplify the management of the GST in your business. QuickBooks' GST management technology, plus the simple set-up and ease of use, sets the product apart from the rest. Getting started and then using QuickBooks on a day-to-day basis is easy, with simple navigation, lay out and easy to use features. QuickBooks offers the ability to tailor the product more specifically to your requirements, such as choosing cash only or accrual double entry accounting.

New features in Version 8

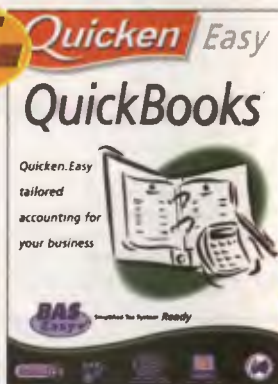
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- Accounts Data Transfer (for Solution 6, & Xlon packages)
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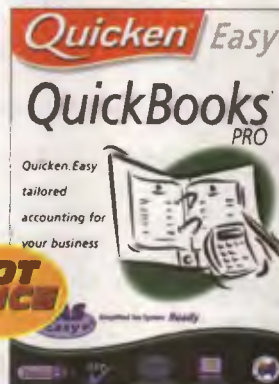
QuickBooks
\$218.00
Websearch Code ...QUI166

QuickBooks Pro
\$385.00
Websearch Code ...QUI169

HOT PRICE



HOT PRICE



Quicken CashBook

CashBook is a single entry cash accounting package for small businesses. This package will easily manage your business finances. CashBook uses single entry accrual accounting. CashBook also monitors sales, controls production, stores customer and supplier records and logs customer enquiries. It also produces quotes, work orders and invoices.

CashBook features include:

- Producing quotes, work orders and invoices
- Managing work in progress and updating job records
- Accounts receivable and payable tracking
- GST management for tracking inputs and outputs for the relevant tax codes (except Wine Equalisation Tax)
- Producing the information needed for Business Activity Statements
- Tracking bank balances and printing cheques

HOT PRICE



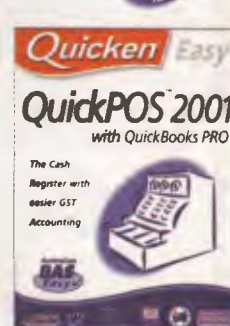
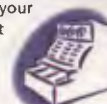
\$165.00
Websearch Code ...QUI175

QuickPOS with QuickBooks Pro

QuickPOS 2001 is the answer to a simple, computerised cash register. QuickPOS functions keystroke for keystroke as a standard Electronic Cash Register would to make sales. This makes QuickPOS very easy and fast to use with minimal training required. QuickPOS will track your sales, inventory, employee, accounts receivable and chart of accounts with the press of a button.

New features in Version 4

- Customisable end of day processes
- Blind cash drawer reconciliation
- Global Management Override
- Web Browser
- Change prices straight from QuickPOS
- Random Price Barcodes
- Integrated Eftpos (no more double keying)
- Currency conversion (accept any currency or travellers cheques)
- QuickPOS now supports Touch Screen



\$1569.00
Websearch Code ...QUI180

ACCOUNTING

QuickPayroll 8

Payroll management gives you the ability to comply with the latest reporting requirements brought about by the GST.

- Track employee leave, pay and superannuation details.
- Work with a flexible Award interpretation system.
- Print payroll outputs.
- Electronically lodge payment summaries on ATO stationery.

QuickPayroll v8 links with QuickBooks v8 software to transfer payroll information directly into the company's accounts.

HOT PRICE



\$335.00
Websearch Code ...QUI193

QuickTrack Solutions V3

QuickBooks goes mobile!

Have you caught up with the changes in the mobile business management and accounting solutions sector? QuickTrack Solutions software runs on your Personal Digital Assistant allowing you to run your business from the palm of your hand, wherever you may be. With QuickTrack you can prepare and print the invoice and hand it to your customer on site with your handheld PC!



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\$265.00
Websearch Code ...QUI194



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Kodak DX 3500

Featuring 2.2 megapixel resolution, 3X digital zoom and a convenient close-up mode to ensure great pictures every time. It's the perfect camera for sharing pictures over e-mail or for printing photo-quality prints up to 8"x10". It comes ready to shoot with 8MB of internal memory and a COMPACTFLASH expansion slot that lets you add additional memory so you can take and save even more pictures. It also comes with a 1.8" LCD screen which lets you preview and review your shots, so you always know you got the perfect picture.

• Win/Mac

\$549.00

Websearch CodeKOD087

RentSmart \$6.02 pw

Kodak DX 3600

The DX3600 offers 2.2 megapixel resolution, 6X zoom (2X optical, 3X digital), and is capable of delivering beautiful images that are perfect for e-mailing, or printing (up to 18 x 24cm) on your inkjet printer. Easily capture life's most precious moments in continuous digital video with audio. It comes with a built-in microphone/ speaker, allowing you to capture and review video with audio right on the camera. You can also connect to a computer or TV and see your videos on a big screen (cable included). The camera comes with 8MB of internal memory, plus a COMPACTFLASH expansion slot so you can easily increase it. Place the DX3600 in the Camera Dock, touch the button and pictures are automatically sent to your computer ready for e-mailing and printing. The Camera Dock also quickly and automatically recharges your camera's battery pack.

\$815.00

Websearch CodeKOD091

RentSmart \$8.93 pw

Kodak DX 3700

Kodak adds an easy to use, high quality 3MP digital camera with the point and shoot simplicity to the Kodak EasyShare portfolio. Life's spontaneous, so you need a camera that can capture all of its special moments. Check out the EasyShare DX3700 Digital Camera. It has 3.1 MP resolution for excellent picture quality up to 11" x 14". Pictures you will want to share with family and friends. Getting closer to the fun is easy with the 3x digital zoom. Use it to share memories and important life events Great photo-realistic pictures up to 11" x 14" Never miss a shot with the internal picture memory!

\$799.00

Websearch CodeKOD093

RentSmart \$8.76 pw

Kodak DX 3900

You love the creativity, the chance to capture the shot you'll be proud to show. The EasyShare DX3900 is for you. Thanks to 3.1MP resolution, you'll get excellent picture quality on prints up to 11" x 14". Its 6X zoom (2X optical and 3X digital) lets you get closer to your subject for crisp detail. For the ultimate in creative freedom, set your own color mode, ISO, and lighting exposure settings to get your perfect picture. The DX3900 comes with a COMPACTFLASH Card to keep you shooting longer. With the optional telephoto, wide-angle, and up-close lens attachments, you can extend your creativity. If you use the KODAK EasyShare Camera Dock, sharing is just as easy. Simply place your DX3900 in the dock, touch the button, and pictures are automatically sent to your computer ready for e-mailing and printing. Get in touch with digital's creative side.

\$1135.00

Websearch CodeKOD092

RentSmart \$12.44 pw

SONY DSCP20 Kit

1.3 Mega Pixel Memory Stick Digital Still CyberShot Camera with ACCSPW Kit. Catch more imaging action with Sony's DSC-P20, the easy-to-use point-and-shoot digital camera. Featuring 3x precision digital zoom, high speed auto focus, and ISO sensitivity setting for capturing any image you want. Recording mode is selectable from JPEG, TIFF, GIF animation and MPEG Movie - great for capturing those fun-filled moments! The DSC-P20 is the digital camera that you would want to take anywhere.

ACCSPW Kit includes Rechargeable Battery, Battery Charger and Carry Case.

\$845.00

Websearch Code.....SONY21

RentSmart \$9.26 pw

SONY DSCP30 Kit

1.3 Megapixel Memory Stick Digital Still CyberShot Camera with ACCSPW Kit. Stylish, compact and feature-packed. The DSC-P30 is designed as an easy-to-use point-and-shoot digital camera. Featuring 3x optical and 6x precision digital zoom, high speed auto focus, AF illuminator and ISO sensitivity setting for capturing any image you want. Recording mode is selectable from JPEG, TIFF, MPEG, text modes and clip motion. The DSC-P30 is the ideal digital camera that you can take anywhere.

ACCSPW Kit includes Rechargeable Battery, Battery Charger and Carry Case.

\$965.00

Websearch Code.....SONY20

RentSmart \$10.58 pw

SONY DSCP50 Kit

2.1 Mega Pixel Memory Stick Digital Still CyberShot Camera with ACCSPW Kit. With an increase of resolution to 2.1 Mega Pixels, the DSC-P50 enhances your overall picture taking experience. Offering an impressive list of features, such as a 3x optical zoom lens, 6x digital zoom, MPEG Movie EX and ISO sensitivity setting - all in a stylish designed package. And the DSC-P50 lets you get up close and personal with your subject with high-speed auto-focus and AF illuminator that allows positive focus in the dark. Shooting with the DSC-P50 will allow you to achieve high digital excellence.

ACCSPW Kit includes Rechargeable Battery, Battery Charger and Carry Case.

\$1049.00

Websearch Code.....SONY22

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SONY DCRTRV330

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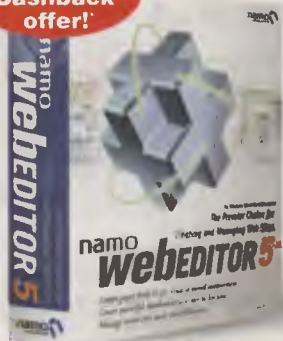
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- Burn to inexpensive CD media (for VCDs & SVCDs*)
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The COOLEST Way to Hot 3D Graphics! Ulead® COOL 3D™ 3.5 allows designers to create high-impact 3D images. Output these 3D images as still graphics, animated titles, video or Macromedia® Flash™ With COOL 3D 3.5, your text and shapes are easily customizable into eye-catching 3D.

- It only takes a couple of clicks to access many convenient features.
- Ulead COOL 3D's animation timeline is easy to use, yet powerful.
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Ulead Photo Explorer 7.0 Pro

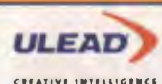
Digital Photography Software Ulead Photo Explorer 7.0 Pro is the complete solution for the digital photography enthusiast. Photo Explorer combines easy-to-use tools for acquiring, viewing, organizing, adjusting and sharing digital images and video clips.

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Full Product
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MULTIMEDIA



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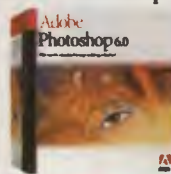
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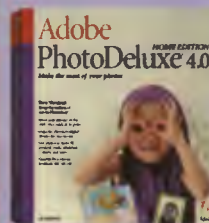


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Websearch MAC ADO254

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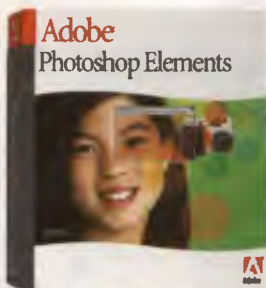
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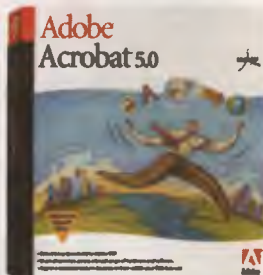


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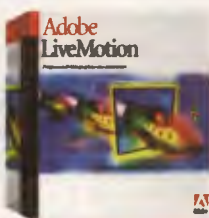
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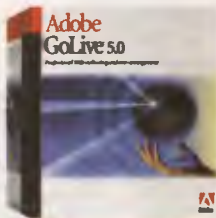
LiveMotion enables designers to create entertaining, interactive animation and user interface elements. With the ability to include animation, high-quality sound, complex interactivity, and other high-impact elements, designers will be able to author exciting, engaging Web content.



\$395.00
Websearch WINADO242
Websearch MACADO243

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Produce superb Web graphics using symbols and innovative slicing options. Explore creative ideas with live distortion tools. Publish graphics in record time with dynamic data-driven graphics and other productivity features.



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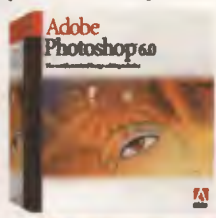


\$1449.00
Websearch WINADO290
Websearch MACADO293

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Websearch MACADO273

Adobe InDesign 2.0

Adobe InDesign 2.0 integrates with other Adobe applications better than any other page layout product. Plus it's packed with intuitive features that free you to capture your inspiration and publish it any where - in print, in Adobe PDF, as eBooks, on the Web, and more.



*Postage & handling applies Call 1300 550 205 to claim FREE Upgrade from Adobe. Conditions apply.

\$1885.00
Websearch WINADO181
Websearch MACADO208

Adobe PageMaker 7.0

Adobe PageMaker 7.0 software is the ideal page layout program for business, education, and small- and home-office (SOHO) professionals who want to create high-quality publications such as brochures and newsletters. Get started quickly with templates, graphics, and intuitive design tools; work productively across Adobe applications.



\$1399.00
Websearch WINADO297
Websearch MACADO298



INTERNATIONAL SOFTWARE WAREHOUSE

EVERYTHING FOR YOUR PC - DELIVERED AUSTRALIA WIDE



PRINTERS

hp officejet t65

- Photo-Quality Colour Printing
- HP PhotoREt II
- Fast black and colour
- Colour Faxing
- One-touch buttons
- Speed dial feature
- Integrated OCR software
- Parallel interface
- Win



PRICE DROP

\$399.00

Websearch Code .HWP417

hp PSC 750

The HP PSC 750 is a versatile, flatbed printer, scanner and copier all-in-one. Create colour brochures, make copies of price lists, and scan photos to use in your promotional literature – all using one compact unit, right at your desktop.



NEW

\$620.00

Websearch Code .HWP418

hp officejet g55

- Photo-quality colour printing
- HP PhotoREt III
- 600dpi Optical Scanner
- Colour flatbed copier
- Easy to set up - fewer cables
- Parallel / USB interface
- Win



\$990.00

Websearch Code .HWP420

hp deskjet 656c

Add colours to your life with HP's easy and affordable colour printer

- prints up to 6 ppm black and 3 ppm colour
- photo-capable with optional hp photo print cartridge
- black/colour cartridges included
- brighter, more vivid colours with HP ColorSmart 3
- compact with fold-up paper tray
- USB connectivity for PC



NEW

\$138.00

Websearch Code .HWP440

hp deskjet 960c

HP's smart photo-quality colour printer that saves you time and money

- up to 2400 x 1200 dpi using premium photo paper
- HP ColorSmart 3 - optimises text, graphics and photos by automatically adjusting colour settings
- low-ink indicator ensure you never run out of ink while printing
- optional automatic two-sided printing



NEW

\$463.00

Websearch Code .HWP441

hp deskjet 948c

- up to 2400 x 1200 dpi using premium photo paper
- HP ColorSmart 3 - optimises text, graphics and photos by automatically adjusting colour settings
- create photo album pages easily with photo software - just drag and drop photos into template
- parallel and USB connectivity, even supports USB-connect Macintosh



NEW

\$370.00

Websearch Code .HWP403

hp deskjet 845c

Step up to HP's photo-quality printer that gives you true-to-original colours

- HP PhotoREt 2 colour layering technology delivers true-to-original colours
- crisp black text and photo-quality images
- up to 600 x 1200 dpi using premium photo paper
- no swapping ink cartridges to print outstanding photo-quality colour
- USB connectivity for PC and Macintosh



NEW

\$184.00

Websearch Code .HWP438

hp deskjet 350cbi

HP's robust and reliable mobile printer for professionals on the move

- Drop-tested and shock-tested
- High volume ink cartridges
- Fast, built-in recharging
- 30-page portable sheet feeder
- Wireless printing
- Mac and PC compatible



NEW

\$585.00

Websearch Code .HWP405

hp deskjet 990cxi

Good quality prints, and a host of useful features.

- Up to 17ppm black printing and 13ppm colour
- 2400x1200dpi on photo paper
- Two sided printing
- Infrared port for printing from mobile devices
- Parallel / USB interface
- Win/Mac



PRICE DROP

\$635.00

Websearch Code .HWP508

hp deskjet 930c

HP's compact photo-quality colour inkjet printer

- 9ppm black, 7.5ppm colour
- PhotoREt 3, 2400 x 1200 dpi
- Get outstanding photo quality on any paper
- Great for offices with limited workspace
- Parallel / USB
- Win/Mac



\$275.00

Websearch Code .HWP435

hp deskjet 1125c

Print any size from postcards (A6) to posters (A3+).

- Up to 7ppm black and 5.5ppm colour
- HP ZoomSmart reduce or enlarge documents
- Booklet printing
- Two-sided printing
- HP PhotoREt 2
- USB interface
- Win/Mac



\$595.00

Websearch Code .HWP445

hp deskjet 1220c

The high performance wide-format inkjet printer for all business needs

- 11ppm black, 9.5ppm colour
- PhotoREt 3, 2400 x 1200 dpi
- Outstanding colour quality
- Full bleed A3+ printing
- Parallel / USB interface
- Win/Mac



\$880.00

Websearch Code .HWP436

HP LaserJet 1200 Series

All models have

- 1200 x 1200dpi
- 15ppm
- HP PCL 5e
- 250 sheet tray
- Parallel / USB interface
- Win/Mac



NEW

\$865.00

Websearch Code .HWP501

1200N - HP JetDirect Network Card, optional scanner/ copier adaptor, 16mb std, 10/100 Base-T

\$1440.00

Websearch Code .HWP502

HP LaserJet 2200 Series

All models have

- 1200dpi
- 18ppm
- 133MHz processor
- HP PCL 5e/6
- Parallel / USB
- Win/Mac



2200D - 8MB 250 sheet tray parallel port

\$1675.00

Websearch Code .HWP503

2200DN - 8MB 250 sheet tray parallel port local talk

\$2195.00

Websearch Code .HWP504

2200DTN - 16MB 500 sheet tray parallel port 10/100 Base-T

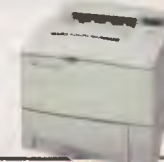
\$2795.00

Websearch Code .HWP505

HP LaserJet 4100 Series

All models have

- 1200dpi
- 24ppm
- 250MHz processor
- HP PCL 5e/6
- PostScript Level 3 emulator



4100 - 16MB parallel port

\$2385.00

Websearch Code .HWP511

4100N - 32MB parallel port 10/100 Base-T

\$3275.00

Websearch Code .HWP506

4100TN - 32MB parallel port 10/100 Base-T

\$3775.00

Websearch Code .HWP507

Includes extra 500 sheet paper tray.



BJC 1000 SP

Outstanding operating Economy. Low purchase price plus Super Economy Mode in black & white and colour.

- Vivid colours, even on plain paper, plus optional high speed black & white.
- Crisp printing up to 720dpi.
- Fast, up to 4ppm in black.
- Up to 2400 pages in black/400 colour pages.
- Exceptional photographic quality. Photo Mode colour with standard inks optimised for plain paper, plus optional PhotoRealism to provide the gold standard in photographic reproduction.
- Parallel interface.
- Win.



\$129.00

Websearch Code.....CAN290

Canon

BJC 2100 SP

A compact, portable high performance printer. Compact design with smart two-tone finish.

- 720 dpi resolution plus Drop Modulation Technology.
- 5 ppm black text & up to 2ppm colour.
- Image and photo optimiser.
- Photo Realism option.
- Now with parallel port for Windows 95/98/2000 & Nt 4.0 plus USB for Windows 98/2000 & Mac.



\$150.00

Websearch Code.....CAN301

Canon

PRINTERS & SCANNERS

Canon BJC 85

Uses half your briefcase not half your desktop!

- USB connectivity
- Up to 5ppm b/w, 2ppm colour
- 720 x 360 dpi
- Optional 4 colour printing
- Cordless printing
- Optional Colour image scanning

Now with USB



\$375.00

Websearch Code ..CAN287

Canon S600

- Four individual ink tanks with low-ink sensor
- Up to 15 ppm black / 10ppm color
- 2400 x 1200 dpi in color (38% greater than 2880 x 720 dpi) 8" x 10" photo in approx. 90 seconds on plain paper
- Advanced MicroFine Droplet Technology™ for exceptional photo-image quality
- Compatibility: Windows® 95/98/2000, Windows NT 4.0, Windows Me and Mac OS 8.1 or later.
- Parallel and USB.
- Image and photo optimiser.



\$535.00

Websearch Code.....CAN320

Canon N340P

Now getting started is remarkably easy. Your scanner plugs directly into the parallel port or hooks up as a middle link between a printer and your PC. Quick and easy CanoScan setup installs the included software and you are ready to make your first scan with Win 95/98/2000/NT4.

- ScanGear Toolbox for easy copy, fax and e-mail operations.
- Simple parallel connection for wide compatibility.
- Optical resolution is 300 x 600 dpi.
- 14 bit colour input.
- Win



\$120.00

Websearch Code ..CAN311

Canon N640P

Whether it's for the home office or small office, the CanoScan FB640P is the perfect solution for all your scanning needs.

- Optical resolution is 600 by 1200 dpi with selectable resolution up to 9600 dpi.
- OmniPage OCR software and ArcSoft PhotoStudio 2000 image editing included.
- Minimal desktop space - revolutionary 39 mm thick design.
- Parallel interface. • Win



\$145.00

Websearch Code ..CAN310

Canon N1240U

The World's First USB, Ultra-compact 1200 dpi Colour Scanner

- Amazing 1200 x 2400dpi optical with selectable resolution up to 9600dpi
- 42 bit input colour depth
- New Z-lid for scanning thick documents or books
- Front panel button and software for simple email, fax and copy operation
- Software for Windows & Mac including OmniPage and PhotoShop Elements



\$290.00

Websearch Code ..CAN503

Canon S800

- 2400 x 1200 dpi, MicroFine Droplet Technology with 4 picolitre drops and New PhotoRealism 6 colour inks 1/6 the density of normal inks to produce up to 49 levels of colour gradation for long life and stunning photographic results
- Extremely accurate drop patterns & new star shaped nozzles to achieve reduced grain & image stability
- Separate ink tanks for each colour with level detection system for reduced operating costs



\$580.00

Websearch Code ..CAN500

NetSmart \$0.30 per page

Canon D1230U

- 1200 x 2400dpi optical res.
- 48 bit input and 42 bit output colour depth
- Superior optics for maximum image quality
- USB connection for Win 98/Me/2000 or Mac OS 8.5+
- Front panel push-button for simple e-mail, faxing and copying
- Includes Adobe PhotoShop LE and OmniPage Windows & Mac



\$395.00

Websearch Code111118



INTERNATIONAL SOFTWARE WAREHOUSE

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Epson Inks

| Supp Code | Websearch | Ink | For Printer | Price |
|-----------|-----------|----------|--|---------|
| S020025 | eps093 | Black | 400, 800, 1000 | \$29.95 |
| S020036 | eps306 | 3 Colour | COL, Pro, Pro XL | \$65 |
| S020047 | eps036 | Black | 200, 820, COL II, II s | \$37 |
| S020049 | eps450 | 3 colour | 820, 1500, COL II, II s | \$45 |
| S020062 | eps386 | Black | 1500 | \$79 |
| S020066 | eps320 | 3 colour | PRO XL+ | \$89 |
| S020089 | eps303 | 3 colour | 400, 850, 860, 1520, COL 800 | \$49.95 |
| S020093 | eps069 | Black | COL 400, 500, 600, PHOTO, EX, 700 | \$39.95 |
| S020097 | eps070 | 3 colour | 200, COL 200, 500 | \$49.95 |
| S020108 | eps304 | Black | COL 800, 850, 1520 | \$54 |
| S020110 | eps145 | 5 colour | PHOTO, EX, 700 | \$48 |
| S020118 | eps166 | Black | COL 3000 | \$114 |
| S020122 | eps169 | Yellow | COL 3000 | \$114 |
| S020126 | eps168 | Magenta | COL 3000 | \$114 |
| S020130 | eps152 | Cyan | COL 3000 | \$114 |
| S020138 | eps314 | 4 colour | COL 300 | \$35.95 |
| S020187 | eps334 | Black | COL 440, 460, 640, 660, 670, PHOTO720, 1200 | \$39.95 |
| S020189 | eps333 | Black | COL 740, 760, 860, 1160 | \$42.45 |
| S020191 | eps335 | Colour | COL 440, 460, 640, 660, 670, 740, 760, 860, 1160 | \$48.95 |
| S020193 | eps012 | 5 colour | PHOTO 720 | \$49.95 |
| T001011 | eps374 | 5 colour | PHOTO 1200 | \$58 |
| T003091 | eps352 | Black | COLOR 900, 980 | \$55.95 |
| T005011 | eps353 | 3 colour | COLOR 900, 980 | \$78 |
| T007091 | eps404 | Black | PHOTO 870, 890, 270, 1290 | \$45 |
| T008091 | eps408 | 5 colour | PHOTO 870, 890 | \$34.95 |
| T009091 | eps406 | 5 colour | PHOTO 1270, 1290 | \$58 |
| T013091 | eps428 | Black | COLOR 480, 580, C20UX, C40UX/SX | \$28.95 |
| T014091 | eps011 | 3 colour | COLOR 480, 580, C20UX, C40UX/SX | \$45 |
| T015201 | eps414 | Black | PHOTO 2000P | \$62 |
| T016201 | eps415 | 5 Colour | PHOTO 2000P | \$78 |
| T017201 | eps423 | Black | COLOR 680 | \$55 |
| T018201 | eps424 | 3 colour | COLOR 680 | \$52 |
| T019201 | eps433 | Black | COLOR 880 | \$62 |
| T020201 | eps434 | 3 colour | COLOR 880 | \$52 |

Laser Cartridges

| | | | |
|---------|--------|------------------------------------|-------|
| S050010 | eps349 | Developer EPL-5700, 5700L, 5800 | \$215 |
| S051016 | eps379 | Single image EPL-5600, N1200 | \$299 |
| S050033 | eps439 | Dev. Black AL-C2000 | \$135 |
| S050034 | eps440 | Dev. Yellow AL-C2000 | \$275 |
| S050035 | eps441 | Dev. Magenta AL-C2000 | \$275 |
| S050036 | eps442 | Developer cartridge, Cyan AL-C2000 | \$275 |

Epson Paper

| Supp Code | Websearch | Paper | Sheets | Price |
|-----------|-----------|---------------------------------|--------|---------|
| S041288 | eps416 | A3Glossy Photo 255gsm | 20 | \$84.95 |
| S041285 | eps001 | A4 Glossy Photo 255gsm | 20 | \$38.95 |
| S041154 | eps341 | Iron-On Transfer (A4) | 10 | \$29.00 |
| S041260 | eps003 | Mat.Hevywght (A3) 67gsm | 50 | \$69.95 |
| S041258 | eps454 | Mat.Hevywght (A4) 167gsm | 50 | \$27.95 |
| S41145 | eps002 | Pan.Phot(210 x 594mm)194gsm | 10 | \$27.95 |
| S041142 | eps372 | Photo (A3)194 gsm | 20 | \$52 |
| S041140 | eps321 | Photo Paper (A4) 194 gsm | 20 | \$19.95 |
| S041134 | eps164 | Photo 4 x 6 194 gsm | 20 | \$24.95 |
| S041073 | eps362 | Photo Glossy Film(A3) | 10 | \$97.99 |
| S041071 | eps313 | Photo Glossy Film (A4) | 15 | \$57.95 |
| S041107 | eps456 | Photo Glossy Film (A6) | 10 | \$8.95 |
| S041125 | eps455 | Photo Glossy(A3)141 gsm | 20 | \$69.95 |
| S041126 | eps373 | Photo Glossy(A4)141 gsm | 20 | \$19.95 |
| S041133 | eps382 | Photo Glossy (A3)141 gsm | 20 | \$89.95 |
| S041102 | eps453 | Photo Banner (A3+) 102 gsm | 1 | \$59.00 |
| S041079 | eps452 | Photo Inkjet (A2)102 gsm | 30 | \$58 |
| S041068 | eps385 | Photo Inkjet (A3) 102 gsm | 100 | \$78 |
| S041061 | eps451 | Photo Inkjet (A4) 102 gsm | 100 | \$29.95 |
| S041069 | eps139 | Photo Inkjet (A3) 102 gsm | 100 | \$79.95 |
| S041144 | eps348 | Photo Stickers (16/sheet) | 5 | \$15.95 |
| S041302 | eps429 | Prem.Glossy Banner (100mm x 8m) | 1 | \$38 |
| S041214 | eps361 | Premium Plain Paper (A4) 80 gsm | 250 | \$11.95 |
| S041063 | eps161 | Transparency Film (A4) | 30 | \$89.95 |

Hewlett Packard Inks

| Supp Code | Websearch | Ink | For Printer | Price |
|-----------|-----------|--------------------------|---|---------|
| HP c4841a | HWP389 | Cyan | 2000 Professional InkJet Series | \$74.95 |
| HP c4842a | HWP390 | Yellow | 2000 Professional InkJet Series | \$74.95 |
| HP c4843a | HWP391 | Magenta | 2000 Professional InkJet Series | \$74.95 |
| HP c4844a | HWP392 | Black | 2000/2500/2000 Pro/Bus InkJet Series | \$74.95 |
| HP c6628a | HPI043 | Black | DeskJet 350cbl | \$85 |
| HP 51626a | HPI006 | Black | DeskJet 400 & 500 Series, DeskWriter 500 Series | \$68.95 |
| HP c6614d | HPI034 | Black | DeskJet 600 Series | \$75 |
| HP 51649a | HPI007 | Tri-Colour | DeskJet 600 Series & 350cbl, OfficeJet 500/600/700 Series | \$75 |
| HP 51629a | HPI008 | Black | DeskJet 600 Series, OfficeJet 500, 600, 700 Series | \$68.95 |
| HP c1823d | HPI025 | Tri-Colour | DeskJet 700/800/1100 Series, OfficeJet t/r/Pro1170 Series, PSC 500, ColorCopier170 | \$79.95 |
| HP 51645a | HPI002 | Black | DeskJet700/800/900/1000/1100/1200/1600 Series, OfficeJet t/r/g/k/ Pro Series, PhotoSmart series | \$69.95 |
| HP 51641a | HPI003 | Tri-Colour | Inkjet Print Cartridge DeskJet 800 Series & 1000cxi, OfficeJet Pro 1150c | \$69.95 |
| HP c6615d | HPI027 | Black | DeskJet 800, OfficeJet k60, PSC 500 | \$64.95 |
| HP c6625a | HPI032 | Tri-Colour | DeskJet 840c | \$74 |
| HP c6578a | HPI038 | Tri-Colour | DeskJet 900/1220 Series, Large OfficeJet g/k Series, ColorCopier 290, PhotoSmart p1000/p1200 Series | \$145 |
| HP c6578d | HPI026 | Tri-Colour | DeskJet 900/1220 Series, OfficeJet g/k Series, ColorCopier 290, PhotoSmart p1000/p1200 Series | \$79 |
| HP C4149A | HWP466 | Black | HP 8500/8550 | \$259 |
| HP C4150A | HWP467 | Cyan | HP 8500/8550 | \$399 |
| HP C4151A | HWP469 | Magenta | HP 8500/8550 | \$399 |
| HP C4152A | HWP510 | Yellow | HP 8500/8550 | \$399 |
| HP C4092A | HWP001 | 2,500 Page Black Toner | HP LaserJet 1100 | \$135 |
| HP C7115A | HPI044 | Black Toner | HP LJ 1200 Toner | \$135 |
| HP C4096A | HWP002 | 5,000 Page Black Toner | HP LJ 2100/2200 | \$210 |
| HP C8061X | HPI045 | 10,000 Page Black Toner | HP LJ 4100 | \$266 |
| HP C3906A | AUC125 | 2,500 Page Black Toner | HP LJ 5L/6L/ 3100/3150 | \$140 |
| HP C4192A | HPI030 | 6,000 Page Cyan Toner | HP 4500 | \$208 |
| HP C4193A | HPI036 | 6,000 Page Magenta Toner | HP 4500 | \$208 |
| HP C4194A | HPI037 | 6,000 Page Yellow Toner | HP 4500 | \$208 |
| HP C4191A | HPI035 | 9,000 Page Black Toner | HP 4500 | \$143 |

Hewlett Packard Paper

| Supp Code | Websearch | Paper | Sheets | Price |
|-----------|-----------|--|--------|---------|
| C6832A | HWP006 | HP A4 Premium Photo Glossy | 20 | \$29 |
| C6951A | HWP007 | HP A4 Premium Plus Photo Paper Matt | 20 | \$29.95 |
| C6043A | HPP033 | HP A4 Premium Photo Paper | 15 | \$25 |
| C6945A | HWP008 | HP 10x15cm Premium Plus Photo Paper Glossy | 20 | \$16.95 |
| C3831A | HWP009 | HP A4 Premium Glossy Paper f DJets, | 10 | \$21.95 |
| C1856A | HPP037 | HP A3 Premium Inkjet Paper | 100 | \$47.95 |
| C6059A | HPP036 | HP A3 Premium Photo Paper Size | 20 | \$59 |
| C6045A | HPP035 | HP Glossy Greeting Card | 10 | \$18.95 |

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Customer Service Representatives!



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www.iswh.com.au



HP Inkjet Print Cartridge

HP Number 49 Tri-colour ink cartridge. High performance colour ink cartridge for DeskJet/DeskWriter 600 series. Also suitable for Officejet 590/635 printers. 22.8ml volume.



\$75.00

Websearch Code ...HP1007

HP Inkjet Print Cartridge

HP Number 15 black ink cartridge for DeskJet 810c, 812c, 840, 845, 845c, OfficeJet K60 and PSC 500 All-in-One. 495 pages at 5% coverage. Proprietary HP pigmented ink. High quality output on everyday paper.



\$65.00

Websearch Code ...HP1027

HP Bright White Inkjet paper

Versatile paper for colour printing on your HP DeskJet, DeskWriter and HP OfficeJet printers and HP CopyJet colour copiers.



\$24.95

Websearch Code ...HWP265

SCANNERS & SUPPLIES

hp scanjet 7450c

Featuring HP's exclusive new CCD scanning technology, the SJ7400c Series provides market-leading image quality with uncompromising speed. The office ready features make it easy to create impressive communications projects and manage business critical documents while saving time and resources.

- 2400 dpi optical
- Automatic document feeder, scan up to 15 ppm
- 48 bit colour
- Scan, copy, email, fax and file
- Scan 35mm slides and up to 5x5" transparencies
- SCSI & USB
- Supports Windows & Mac



\$1540.00

Websearch Code ...HP5050

hp scanjet 2200c

The HP Scanjet 200c colour scanner is a simple, complete solution - everything you need to start scanning today is in the box. Connecting to your USB - PC is a snap with the handy USB port. Exclusive software makes it easy to install - HP's scanning software guides you every step of the way.

- 600 x 1200 dpi hardware resolution
- 9600 dpi enhanced resolution operating system
- Microsoft® Windows® 98, 2000 Professional and Microsoft® Windows® Me
- Handy USB port makes connecting to your USB-PC easy



\$185.00

Websearch Code ...HP5049

hp scanjet 4400c

Make your old photos last forever. With the Scanjet 4400cse you can save old family photos, make digital scrapbooks and send them to your family via e-mail. It's easy to do, just press a single button to scan, e-mail, photo reprint, copy and more.

- 1200 x 1200 dpi hardware resolution
- Windows 95, 98, Me, NT 4.0 or 2000 professional.
- USB Connection: Microsoft Windows 98, Me, 2000 and Mac 8.6 - 9.1
- 1 year warranty



\$285.00

Websearch Code ...HP5051

hp scanjet 4470c

Release your creativity with the Scanjet 4470c. Save your prized photos and documents onto a CD with just one click. Make scanning easy and fun with the other one-button functions: scan, share to web, scan to e-mail, color copy, photo reprint.

- 1200 x 2400 dpi hardware resolution
- Scan 35mm negatives and slides with included Active Transparency Adapter
- USB/Parallel ports mean you can connect easily to your PC or Mac (USB cable included)



\$385.00

Websearch Code ...HP5053

hp scanjet 5400c

High-performance 2400dpi scanner for professional use. Make scanning easy and fun with the one-button functions: scan, share to web, scan to e-mail, color copy, photo reprint.

- 2400dpi optical, 2400 x 2400dpi hardware
- 8 sec previews
- 48-bit colour
- Includes USB & parallel cable and power cord.
- MS Windows 95/98/2000/Me/NT4.0 and Mac compatible



\$425.00

Websearch Code ...HP5054

hp scanjet 5470c

Your projects shine with the 5470cse color scanner. Scan 2400 dpi and 48 bit color. Get preview scans in 8 seconds. Save time with the optional 25 page Automatic Document Feeder. Eight one-touch buttons let you scan, e-mail, photo reprint and more.

- 2400 x 2400 dpi resolution
- Parallel Connection: MS Windows 95, 98, Me, NT 4.0 or 2000 professional.
- USB Connection: Microsoft Windows 98, Me, 2000 and Mac 8.6 - 9.1.



\$559.00

Websearch Code ...HP5055

hp scanjet 7400c

Featuring HP's exclusive new CCD scanning technology, the SJ7400c Series provides market-leading image quality with uncompromising speed. The office ready features make it easy to create impressive communications projects and manage business critical documents while saving time and resources.

- 2400 dpi optical
- 48 bit colour
- Scan, copy, email, fax and file
- Scan 35mm slides and up to 5x5" transparencies
- SCSI & USB
- Supports Windows & Mac



\$1095.00

Websearch Code ...HP5048

Opening Hours

Sales lines open:
8.30am until 5.30pm (EST)
Monday to Friday
(except Wednesday 9.00am until 5.30pm)

Pricing

All orders are invoiced inclusive of GST. Prices are subject to change & product availability.*

* See our Terms & Conditions on page 2.

COMPUTER PRODUCTS AT ROCK BOTTOM PRICES!!!



INTERNATIONAL SOFTWARE WAREHOUSE

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PRINTERS

EPL-5700L

The ideal laser printing solution for small business and home offices, as well as for personal use in large companies. It gives you exactly what you want from a laser printer - high quality - with highly detailed 1200 dpi class resolution. Plus quick 8 ppm output, convenient operation and a USB interface for compatibility with both Windows and Mac computers.



EPSON

\$575.00

Websearch Code ...EPL001

EPL-5800

10 ppm personal desktop laser printer with 1200 dpi high-quality output. 10ppm print speed, advanced printer control language and standard 16Mb of RAM, (exp. to 256Mb) for fast processing speed. Optional network card for connecting directly to a network. Has USB interface and bi-directional parallel interface that provides high-speed data transfer with one quick connection. Win98 and Mac OS 8.1 or later.



EPSON

\$725.00

Websearch Code ...EPL003

Epson USB to Parallel Cable

Cable for use with:

- Epson Stylus Colour 440/640/600/800/850/1520/3000 &
- Epson Stylus Photo 700/Photo EX
- Mac only

EPSON

\$155.00

Websearch Code ...EPS449

Stylus C20UX

The Easy-To-Use Home Colour Printer

Professional-level colour printing technology and quality in an easy-to-use printer. The STYLUS C20UX delivers image clarity and text sharpness with 720 dpi (dots per inch) printing resolution; and with EPSON's Ultra Micro Dot and Variable-Sized Droplet technologies, documents, photos, school projects and even original T-shirt transfers are printed just as you expect them.



With the STYLUS C20UX, EPSON's key inkjet differentiator - the EPSON PerfectPicture Imaging System - provides:

- MicroPiezo print head technology,
- Quick-Dry inks,
- AcuPhoto Halftoning, and
- EPSON Specialty Media.

\$129.00

Websearch Code ...EPS446

EPSON

Stylus C60

It is a fact. If you want affordable, quality printing then you need an affordable, quality printer. Quality is precisely what you get. From the amazingly fast printing, to the print driver that is fun to use, right through to the fast, colourful and amazingly fine detailed prints, everything about this printer spells quality. Fast 12 ppm* for black text. Vibrant Superb and accurate colour printing with a four-colour ink system. Precise Super fine detailed printing with up to 2880 dpi, MicroPiezo Print Head and 4pl Variable Sized Droplet Technology. Intellidrive ink system. Designed to work perfectly with the printer and media to ensure you get the very best print quality and trouble-free, peace-of-mind printing, every print, every time.



\$285.00

Websearch Code ...EPS466

EPSON

Stylus Colour C70

Fast 16 ppm inkjet printer for greater productivity. In the world of business, printing is a serious matter. Presentations, financial reports, business correspondence - they all demand a printer that actually supports the importance of any document. With the EPSON STYLUS C70, total print dependability is the key. It's a dependability built on the printer's speed, intelligence, print durability and precision.



\$455.00

Websearch Code ...EPS467

Stylus Colour C80

The business inkjet printer with super-fast 20 ppm, high quality, durable printing. The EPSON STYLUS C80 represents a landmark in EPSON's award-winning STYLUS colour inkjet printers for serious business users. In a single printer, speed, precision, print durability and operational ease have been brought together, delivering a "no compromise" print solution.



\$630.00

Websearch Code ...EPS468

Stylus C40UX

Optimum image detail and text sharpness with 1440 dpi resolution. With Ultra Micro Dot and Variable-Sized Droplet technologies, documents, photos and even T-shirt transfers are printed with incredible crispness and clarity.



\$175.00

Websearch Code ...EPS447

EPSON

Stylus Photo 810

The STYLUS Photo 810 packs a powerful punch for any printing need. This printer comes with EPSON's photo manipulation software, PhotoQuicker 3.0, and together with the design specifications meets the exacting requirements of high quality photographic printing. The ideal printing solution for all enthusiastic photographers.



\$385.00

Websearch Code ...EPS463

EPSON

AcuLaser C2000P

- Colour Printing at 5ppm and B/W at 20ppm
- AcuLaser Colour Halftoning provides print resolution equivalent to 2400 dpi (defined print resolution: 600dpi).
- The main paper cassette holds 500 sheets
- Adobe Postscript
- 10/100Base T, Parallel interface
- Windows 95/98/2k



\$6170.00

Websearch Code ...EPS420

EPSON

Epson Stylus Photo 895

Enjoy the personal digital photo-lab experience right from your desk. Delivering up to 2880 x 720 dpi, six-colour, True BorderFree printing of your photos, either from your computer or standalone printing from data via your digital camera memory card.



\$740.00

Websearch Code ...EPS464

EPSON

Stylus Photo 1290

Exceptional speed, & can produce lightfast prints that retain their colour for over 10 years! With A3+ and more natural 6-colour printing at 2880 dpi and USB/Parallel interface

- Win/Mac



\$1090.00

Websearch Code ...EPS445

EPSON

Stylus Photo 2000P

Designed from the outset to produce professional quality photographic prints, the EPSON STYLUS PHOTO 2000P is ideal for professional photographers, graphic designers and amateur enthusiasts.

- Win/Mac



\$1995.00

Websearch Code ...EPS413

EPSON

Stylus Colour 1160

- A3 full bleed
- 1440 x 720 dpi
- 9.5ppm mono, 9.2ppm colour
- USB/Parallel interface
- Win/Mac



\$629.00

Websearch Code ...EPS393

EPSON



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www.iswh.com.au



AutoCAD LT 2002



AutoCAD LT® 2002 is the only 2D CAD program providing 100-percent DWG compatibility with AutoCAD® 2002-based products. That means you can open, edit, and exchange drawing files (DWGs) with complete confidence. A comprehensive Internet toolset streamlines collaboration between design team members-shortening cycle times and reducing costs. Plus new enhancements like automated associative dimensioning help you create quality designs more efficiently. AutoCAD LT 2002. Connected.

Collaborative.
And powerfully 2D.

Protect your investment by upgrading your AutoCAD LT® 98 before 15th January 2002.



| |
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| Upgrade |
| \$375.00 |
| Websearch Code...AUT481 |
| Full Version |
| \$1369.00 |
| Websearch Code...AUT482 |



AutoCAD 2002



With AutoCAD® 2002, you can get your design information where it's needed- quickly, easily, and accurately. Its design collaboration tools help you maximize the value of your design data-by sharing files, accessing design resources, and meeting in real time with the entire project team. With powerful features such as CAD standard management tools, associative dimensioning, new Object snaps, 3D Orbit and more, AutoCAD® 2002 will help you create quality designs more efficiently giving you that strategic competitive advantage.

Protect your investment by upgrading your AutoCAD Release 14 before 15th January 2002. Upgrades also available for AutoCAD 2000 and AutoCAD 2000i. Call for pricing

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| Full Version |
| \$7249.00 |
| Websearch Code...AUT483 |



CAD

Symbols 2000 Architectural

A professional collection of more than 5,600 architectural symbols that let you complete detailed floor plans and construction documents dramatically faster. The package includes symbols for external layouts (bushes, trees, people), plan views, elevations and sections, electrical installation, building services/HVAC (plumbing, ventilation), kitchens, bathrooms, office furniture, network planning, pictograms for recreation, sports organisation and planning.



| |
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| \$149.00 |
| Websearch Code...AUT476 |

Autodesk 3D Studio VIZ R3i

Bring your designs alive with Autodesk 3D Studio VIZ R3i, a multimedia software tool that provides a visually rich, 3D, interactive user interface. 3D Studio VIZ R3i is easy to use and is interoperable with AutoCAD applications.



Upgrades available, call for pricing.

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| \$3835.00 |
| Websearch Code...AUT484 |

Autodesk CAD Overlay 2002

Whatever raster images your projects require-scanned paper drawings, maps, photos-Autodesk® CAD Overlay® 2002 is the solution for precise and seamless integration of your image data.



Upgrades available, call for pricing.

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| \$2445.00 |
| Websearch Code...AUT486 |

Volo View 2

Volo™ View 2 software is a cost-effective, easy-to-use digital design viewing solution that lets everyone on your team electronically review, mark up, measure, and plot AutoCAD® and Autodesk Inventor™ based drawings.



Upgrades available, call for pricing.

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| \$385.00 |
| Websearch Code...AUT488 |

Autodesk OnSite 2

Use Autodesk® OnSite View 2 to review, mark up, and measure AutoCAD® DWG and DXF(tm) drawings right at the point of work on your Microsoft® Windows® CE based mobile computing devices.



Upgrades available, call for pricing.

| |
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| \$395.00 |
| Websearch Code...AUT490 |

AutoSketch 7.0

An affordable and easy-to-use precision drawing tool for new or occasional CAD users who need to create conceptual drawings and sketches. It provides productivity and ease of use features not found in other low cost precision drawing programs. From concept sketches, information graphics and floor layouts to presentations, electrical drawings and home project plans, you can draw it all - quickly and accurately.



Upgrades available, call for pricing.

| |
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| \$195.00 |
| Websearch Code...QUI052 |

QuickCAD 7

QuickCad is the most affordable design program that Autodesk offers, but its low price doesn't diminish its capabilities. It comes with plenty of productivity features that let you make technical designs and diagrams. With its short learning curve, QuickCAD lets you start drawing right away by offering a simple beginner interface, then as you grow familiar with its capabilities, you can change to advanced or expert levels.



Upgrades available, call for pricing.

| |
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| \$95.00 |
| Websearch Code...AUT040 |

Symbols 2000 Engineering

A collection of more than 10,000 symbols in total, covering symbols for manufacturing and schematics drawings. The set includes more than 3,100 symbols for electrical schematics and installation plans complying with IEC standards with symbols for switching equipment, generation and conversion of energy, telecommunications and electrical installation.



| |
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| \$149.00 |
| Websearch Code...AUT477 |

COMPUTER PRODUCTS AT ROCK BOTTOM PRICES!!!



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UTILITIES

Norton Internet Security 1.0 For Mac

Norton Internet Security for Mac 1.0 is the first Internet security suite to offer a comprehensive solution with protection against Internet threats such as hackers, privacy intrusion and viruses. Combines Norton Personal Firewall for Macintosh 1.0, Norton AntiVirus for Macintosh 7.0, and iClean by Aladdin Systems, a desktop cleaning tool that sweeps away Web surfing tracks.



Norton SystemWorks For Mac

This essential suite features the following: Norton Utilities helps you repair and optimise disks, recover lost data, and prevent future problems. Norton AntiVirus finds and repairs infected files to keep your data safe and secure. Aladdin Spring Cleaning safely removes old programs and Internet clutter. Dantz Retrospect Express Backup copies files quickly and easily to a wide range of removable media.



Norton SystemWorks 2002 Professional

The complete problem-solving suite for advanced users and small businesses.

The new one-button checkup makes system maintenance as easy as the click of a mouse. Norton AntiVirus™ 2002 is the world's leading anti-virus software. Norton Utilities™ 2002 optimizes your PC's performance. Norton CleanSweep™ 2002 cleans out Internet buildup. Norton Web Services™ - powered by ZDNet Updates - and Symantec Web Partners offer convenient online services. Norton Ghost™ 2002 provides fast system upgrading and backup. And WinFax™ Basic Edition lets you send, receive, and manage faxes. Now Windows NT® 2000, and Windows Millennium Edition users can also enjoy the benefits of Norton SystemWorks.

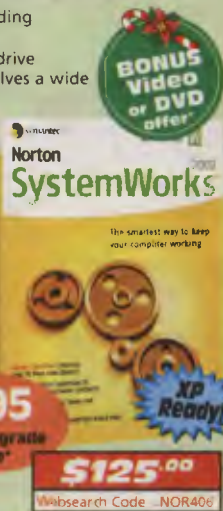
* \$40 rebate coupon in box for previous customers of Norton SystemWorks, Norton AntiVirus, Norton Utilities, Norton CrashGuard, Norton CleanSweep, Norton Ghost Personal, Norton Internet Security.



Norton SystemWorks 2002

The smartest way to keep your computer working!

- Norton AntiVirus 2002, the world's leading antivirus software.
 - Norton Utilities 2002 keeps your hard drive organized efficiently, diagnoses and solves a wide range of Windows problems.
 - Norton CleanSweep 2002 improves your PC's by safely and easily cleaning out Internet buildup and other unneeded files.
 - Norton Web Services-powered by ZDNet Updates-gives you easy access to updates.
 - Symantec Web Partners offer convenient access to a variety of online services for PC problem solving and system protection.
- * \$30 rebate coupon in box for previous customers of Norton SystemWorks, Norton AntiVirus, Norton Utilities, Norton CrashGuard, Norton CleanSweep, Norton Internet Security.



Norton AntiVirus 2002

Don't let a virus ruin your day - and your valuable files! Protect your PC with the world's leading anti-virus software.

- Antivirus protection that is always up to date
- Auto-updating feature that will automatically sense an open Internet connection and check/retrieve any available updates for virus definitions
- Maximum protection from Internet and email viruses with a global response team of antivirus experts watching out for you
- Reduced size of downloadable files
- Bootable CD for emergency
- "Undo" Functionality to Boot Sector repairs.



BONUS Video*

with purchases of Norton AntiVirus, Norton Personal Firewall or Norton Utilities! Via mail-in redemption. See box for details. Offer closes 31/12/01.

- ANTZ
- Chicken Run
- Road Trip
- Lock, Stock and Two Smoking Barrels
- Highlander 15th Anniversary Edition
- Paperback Hero

Selection limited to titles shown. Via mail-in redemption. See box for details. Offer closes 31/12/01. *US: US titles can only be redeemed by persons aged 18 years and above.

BONUS ANTZ Video

with purchases of Norton AntiVirus, Norton Personal Firewall or Norton Utilities! Via mail-in redemption. See box for details. Offer closes 31/12/01.

BONUS DVD or Video!

with purchases of Norton SystemWorks or Norton Internet Security!

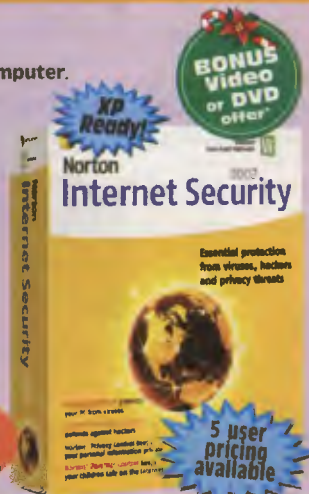
BONUS DVD or Video!

Norton Internet Security 2002

Norton Internet Security™ 2002 provides essential Internet protection for your home computer.

Norton Internet Security™ 2002 is your essential protection from viruses hackers and privacy threats. It's the only suite that includes Symantec's award-winning security solutions in one easy-to-use completely integrated product. Norton AntiVirus™ is the world's most trusted anti-virus software. It repairs many virus infections automatically without interrupting your work. It scans and cleans both incoming and outgoing email updates itself automatically over the Internet and defends against script-based viruses such as "iLoveYou" and "Anna Kournikova" even between virus definition updates. Norton™ Personal Firewall blocks hackers' intrusions. Whether you have a dial-up DSL or cable connection your PC needs this vital safeguard. Worried about web sites getting your personal information inappropriately? Worry no more with Norton™ Privacy Control. It helps you keep email addresses and credit-card numbers secure and control which sites track your activities with Internet "cookies." Norton™ Parental Control keeps your children safe on the Internet. It includes a comprehensive customizable list of objectionable sites and lets you set up different Internet access privileges for each person in your household. Get Norton Internet Security 2002 today and protect yourself and your PC when you email, bank, shop or play online.

* \$20 rebate coupon in box for previous customers of Norton Internet Security, Norton AntiVirus, Norton Personal Firewall or Norton SystemWorks



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www.iswh.com.au



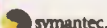
Symantec Small Business Solutions

Norton AntiVirus 2002 5 User Pack

Norton AntiVirus 2002 Multi-user pack provides essential virus protection for the small business to licence up to five workstations. It's always working in the background to protect your PC, and now it automatically updates its virus definitions when you're connected to the Internet. Don't let your company fall victim to viruses or other malicious Internet code.

For Windows® 2000/NT/ME/98/95 Workstations.

\$265.00
Websearch Code .NOR419

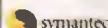


Norton AntiVirus 7.5 Small Business Solution for 10 Users

For small managed networks consisting of 1 server and up to 9 workstations, Norton AntiVirus 7.5 Small Business Solution for 10 Users, provides automated, centralised virus protection and management. Additional server or workstation licences may be purchased through the Symantec Value Licence Program.

For Netware 3.13, 3.2, 4.11, 4.2, 5.X; WinNT v4/2000 Server; Os/2 client; DOS, Win3x; Win95/98; WinNT v4/2000 & Macintosh.

\$1199.00
Websearch Code .NOR420



pcAnywhere 10

pcAnywhere™ is the No.1 seller for fast, easy access to any PC. If you need to work from home or on the road, pcAnywhere lets you connect to your office PC to retrieve files or run desktop applications. If you're an IT professional, pcAnywhere lets you remotely support users and manage servers effectively.

For Windows® 95/98/NT/2000/ME.

\$245.00
Websearch Code .111085



pcAnywhere 10 Small Business Solution 5 Pack

Includes 1 remote and 5 host licences pcAnywhere is a comprehensive remote control and file transfer solution for telecommuters and IS/IT professionals. It allows you to quickly and securely access up to five remote computers. pcAnywhere v10.0 offers extensive security measures to ensure remote control hosts are correctly configured for maximum protection. The many customizable features allow you to configure pcAnywhere to meet your needs.

For Windows® 95/98/NT/2000/ME.

\$479.00
Websearch Code .111203



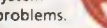
Corporate Licensing

Symantec Value License Program is the fastest and easiest way to license Symantec software. The certificate-based program provides attractive volume discounts, minimal paperwork, and a low minimum initial purchase of only 10 units (1 unit for server based products). No legal review or contracts are required - all you need is a purchase order. With the Symantec Value License Program, you simply purchase one retail or low-cost media pack from your reseller, and we supply a certificate authorising you to make one copy for each license purchased. It's that simple. And unlike many other software licenses that have a limited term, with Symantec once you've purchased your license, it's yours for life. Call 1300 300 003 to find out more.

Norton Utilities 2002

Norton Utilities 2002 optimizes your PC's performance and solves system problems easily. Now Windows NT, Windows 2000 and Windows Millennium users can keep their PCs running at peak performance and fix recurring problems. It also diagnoses and solves a wide range of problems. Run Norton Utilities continuously in the background to detect potential disk and system problems.

\$95.00
Websearch Code .NOR415



Norton Ghost 2002

Norton Ghost 2002 provides high-performance utilities for fast and safe system upgrading, backup, and recovery. This new version supports the Linux EXT2 file system, writes disk images directly to many popular CDR/RW drives, clones quickly from PC to PC, and enables Windows 2000 and Windows Millennium users to take advantage of its powerful tools.

\$135.00
Websearch Code .NOR411



WinFax Pro 10

WinFax PRO 10.0 is the #1 choice for sending, receiving and managing faxes*. Easy to set up, learn and use. Integrates with your key business applications. Version 10.0 lets you send and forward faxes via email. When image clarity is vital, you also have the option of sending photo-quality faxes. For simplified project management, store faxes in the folders of your choice.

* Telephone connection needed.

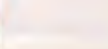
\$118.00
Websearch Code .SYM210



CleanSweep 2002

Clean out Internet buildup with award-winning Norton CleanSweep from Symantec. Thorough and reliable, Norton CleanSweep removes a wide array of nonessential items on your hard drive. A graphical interface and intuitive wizards make Norton CleanSweep as easy to use as it is thorough. Don't take risks with your computer - trust Norton CleanSweep 2002.

\$79.00
Websearch Code .NOR409



UTILITIES

Norton AntiVirus 7.0 For Mac

Finds and repairs infected files, protecting against Macintosh viruses and macro viruses to keep your data safe and secure. It even auto-matically scans email attachments for viruses. LiveUpdate™ technology provides easy updating of virus definitions over the Internet.

\$95.00
Websearch Code .NOR220

Norton Personal Firewall 1.0 For Mac

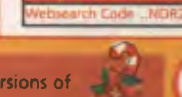
Internet security solution that protects connected consumers from hacking and privacy intrusions. It blocks connections thereby preventing hackers from gaining access to important data stored on the computer.

\$95.00
Websearch Code .NOR225

Norton Utilities 6.0 For Mac

Optimise performance and solve problems easily with Norton Utilities™. Disk Doctor™ finds and repairs disk problems. Speed Disk™ optimises your drive's performance, while UnErase™ and Volume Recover help restore lost files.

\$138.00
Websearch Code .NOR221



* BONUS ANTZ Video offer via redemption from Symantec only. Valid on purchases till 31st December 2001. Valid on full commercial versions of AntiVirus 2002, Utilities 2002, Personal Firewall 2002, AntiVirus 7 for Mac, Personal Firewall 1 for Mac and Utilities 6 for Mac. Conditions apply.



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DATABASE

New Version

FileMaker Pro 5.5

Manage Your Data from Desktop to Web

FileMaker Pro 5.5 is the world's first software native for Mac OS X and logo-certified for Windows 2000. FileMaker Pro 5.5 brings instant productivity to today's business workgroups, helping you manage and share vital information with colleagues across the office or around the world. Whether you interface with Microsoft Office, develop your own databases, or exchange information with any kind of application, the new design tools in FileMaker Pro 5.5 will let you create powerful, customised business solutions. The new and faster FileMaker Pro 5.5 Web Companion provides a richer FileMaker experience over the Web, allowing for easy information collection and sharing.

Upgrade
\$275.00
 Websearch Code FIL023

Full Product
\$465.00
 Websearch Code FIL022

FileMaker Developer 5.5

FileMaker Developer 5.5 is the essential development environment for creating professional custom FileMaker solutions to be used for the Web, across workgroups or as royalty-free runtime applications. Powerful tools have been added to save you valuable development time. Test and verify your scripts with the new Script Debugger. Document the structure of any FileMaker solution with the push of a button and view detailed information on fields, layouts, value lists, scripts, relationships and passwords. Connect to external data sources with our JDBC, or ODBC drivers. Whether you are developing commercial or in-house solutions, FileMaker Developer 5.5 is the tool of choice.



\$985.00
 Websearch Code FIL031

FileMaker Mobile Companion for Palm OS

Be productive in just minutes with this easy-to-use FileMaker Pro 5 companion-just load and go. Take along just the data you need; load the field names and data you select from your single-user FileMaker Pro 5 databases onto the Palm OS handheld with just a few clicks. No need to invest time or effort to re-build your databases on the handheld; FileMaker Mobile does it for you.



Palm for illustration purposes only.

\$109.00
 Websearch Code FIL020

FileMaker Server 5.5

The Database Server for Growing Workgroups

An easy-to-use relational database server - is the best way to host your FileMaker Pro 5.5 solutions on Windows 2000, Mac OS X, Mac OS and Red Hat® Linux. This high-performance server engine supports up to 250 FileMaker Pro 5.5 guests simultaneously on multiple platforms with several protocol options and up to 125-hosted files. It includes automatic plug-in updating, scheduled backups and remote administration tools to monitor server activity and to control guest and file connections.



Upgrade
\$990.00
 Websearch Code FIL030

Full Product
\$1995.00
 Websearch Code FIL010

FileMaker Pro 5.5 Unlimited

Powerful Web database publishing which brings expanded productivity to the business workgroup.

Utilise the FileMaker Web Server Connector to increase the performance, reliability and scalability of your FileMaker Web databases. Use multiple copies of FileMaker Pro 5.5 Unlimited to set up a redundant array of inexpensive computers structure to provide scalable load balancing and ensure operation through fail over situations. It may also be used with a wide variety of middleware applications, CGIs, and application servers for large-scale customised web solutions.



Upgrade
\$990.00
 Websearch Code131020

Full Product
\$1995.00
 Websearch Code131019

Opening Hours

Sales lines open:
 8.30am until 5.30pm (EST)
 Monday to Friday
 (except Wednesday 9.00am until 5.30pm)

Pricing

All orders are invoiced inclusive of GST. Prices are subject to change & product availability.*

* See our Terms & Conditions on page 2.



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MAUS Masterplan and Customer Relationship Manager Bundle

Includes: • MAUS Masterplan • Maus Customer Relationship Manager

The first 20 orders will receive a **FREE Business Letters & Job Match Employee Assessment Report** valued at \$230.95

\$425.00
Websearch Code : MAU030

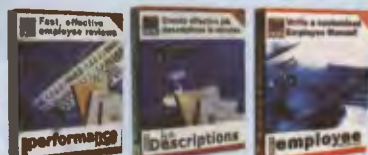


MAUS HR Suite

Includes: • Performance Review • Job Descriptions • Employee Manual

The first 15 orders will receive a **FREE Job Match Employee Assessment Report** valued at \$175

\$499.00
Websearch Code : MAU013



MAUS Office Pack

Includes: • MAUS Masterplan • MAUS Project Planner • Performance Review • Job Descriptions • Employee Manual

The first 20 orders will receive a **FREE Business Letters & Job Match Employee Assessment Report** valued at \$230.95

\$849.00
Websearch Code : MAU026



MAUS Customer Relationship Manager

Customer Relationship Manager has powerful features that will help you to better manage your customers, your employees and your operational efficiency. You will capture the right information from your customer, combine that with your sales information and analyse your database and formulate new strategies to direct more accurate and profitable campaigns. Accesses all data from MYOB, QuickBooks and ALL other major accounting packages.



\$249.00
Websearch Code : MAU027

MAUS MasterPlan

Award Finalist In the Telstra Small Business Show Software awards

For people who need a winning, professional Business or Marketing Plan, MasterPlan's simple step-by-step question and answer format enables you to construct full financials, text and graphics in no time at all! Sample plans, real life examples and a unique financial wizard will ensure you prepare a perfect plan every time.



AWARD FINALIST



\$189.00
Websearch Code : AAU051

MAUS Type Right

The fast new way to increase typing speed and accuracy. It takes you through the typing process step by step with fun tutorials and easy exercises. Best of all, this application is designed specifically for people who are using keyboards and computers so its approach is practical and relevant to today's office environment. Basic keyboard skills can be attained in 4-6 hours.



\$85.00
Websearch Code : MAU029

MAUS Project Planner

Forget complicated project management software that is as difficult to understand as it is to operate, complete important activities on time and under budget with this user-friendly application which tracks costs, labour required, available resources and deadlines. View instant reports and graphs, including easy to use Gantt charts and actual vs Budget comparisons.



\$189.00
Websearch Code : MAU018

MAUS Performance Review

Create accurate, personal-ised reviews in no time with this revolutionary approach to performance management. Choose from dozens of performance criteria and then use the grading system to rank your employee in each area. The software will then support your ratings with clear text. Package also includes expert HR advice.



\$189.00
Websearch Code : MAU004

MAUS Stockmarket Plus v4

MAUS Stockmarket Plus is an AWARD FINALIST in the Channel 9 small business show software awards and one of the biggest selling personal investment software tools in Australia. The application is a 4 in 1 Investment Software Tool. It handles shares, options, warrants, property, managed funds, fixed interest and a range of other investments with ease!



AWARD FINALIST



\$179.00
Websearch Code : MAU007

BUSINESS

MAUS Job Descriptions

Create clear, concise job descriptions in minutes with this simple to use program. Choose from over 3,500 customisable job descriptions selectable by job title or industry. Use the question and answer format to address physical and educational requirements, work environment, qualifications and supervisory duties.



\$189.00
Websearch Code : MAU005

MAUS Employee Manual

MAUS Employee Manual is the simplest way to create a handbook encompassing all of your organisations policies and procedures. The application covers issues such as holiday entitlement, employee benefits, employment contracts, recruitment, termination and much more through a simple to use question and answer format.



\$189.00
Websearch Code : MAU011

MAUS Health & Safety Planner

This application provides businesses with the necessary tools to develop an Occupational Health and Safety (OH & S) Management Plan. Avoid potentially costly employee litigation by improving safety standards and systems within your workplace.



\$189.00
Websearch Code : MAU015

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CONNECTIVITY

Netgear GA622T 1000BASE-T Adapter

NETGEAR's GA622T Copper Gigabit Ethernet Card accelerates your network to 1000 Mbps over Cat 5 networking cables and eliminates the annoying problem of network bottlenecks. This high-performance, 100/1000 Mbps adapter is ideal for multiple 100 Mbps clients accessing a 1 Gbps server. It comes equipped with drivers that support all popular operating systems and are optimized for peak server performance. The versatile GA622T provides the ultimate throughput with 64-bit PCI connections, and speeds up legacy systems with 32-bit PCI capacity. Simple, Plug and Play installation has your network up and running in minutes.



\$369.00

Websearch Code ...NET222

D-Link DMF-560TXD

PCMCIA Card

The D-Link DMF-560TXD is a Direct Port™ 10/100Mbps Dual Speed Ethernet PC Card with an integrated V.90/K56flex Data/Fax Modem. It allows PC or Power MAC laptop users to seamlessly connect to both Ethernet and Fast Ethernet LANs. The D-Link DMF-560TXD also allows users to send and receive faxes, connect to the Internet, and dial into a Remote Access Server or PC using this one PCMCIA PC Card solution.



D-Link
Building Networks for People

\$385.00

Websearch Code ...DLK069

D-Link DI-713P

Internet Gateway

The D-Link DI-713P is a broadband IEEE 802.11b compliant wireless gateway. The DI-713P provides the ability to share a broadband connection as well as a print server function. The D-Link DI-713P allows a DSL or Cable Modem connection to be shared through either its three local 10/100 Ethernet ports or via its integrated Wireless IEEE 802.11b component. The DI-713P is equipped with a bi-directional LPT port to support a direct printer connection.



D-Link
Building Networks for People

\$829.00

Websearch Code ...DLK070

D-Link DFE-910

Network Kit

The D-Link DFE-910 Network in a Box is a 10/100Mbps Fast Ethernet network starter kit. It includes two DFE-530TX+ network cards and a DSS-S+ Fast Ethernet 5-Port Switch. The DFE-910 is specially packaged for the home and small businesses. It includes everything a network beginner or home user needs to connect two PCs together and install a Windows-based PC network.



D-Link
Building Networks for People

\$260.00

Websearch Code ...DLK036

D-Link DU-A2

USB Controller Card

The D-Link DU-A2 is a 2-port Universal Serial Bus USB PCI controller. It allows connection of up to 2 USB peripherals, devices, or USB hubs to a Windows 95 OSR2 or Windows 98 PC. The DU-A2 is targeted at users with older PCs that have no integrated USB support, and users with newer PCs who wish to add additional USB ports.



D-Link
Building Networks for People

\$59.00

Websearch Code ...DLK071

DI-701

Cable ADSL Gateway

The D-Link DI-701 Residential Gateway protects your computer from hackers or unwanted users. It is the easiest and safest way to share your high-speed internet connection with a DSL Modem or Cable Modem.



D-Link
Building Networks for People

\$315.00

Websearch Code ...DLK050

DFM-560E

External 56K Voice and Data Modem

High Speed Fax Modem
Supports handset headset or Half-Duplex, Speakerphone Mode, Windows NT 4.0 & 95/98 Compatible.



D-Link
Building Networks for People

\$125.00

Websearch Code ...DLK028

Network Starter Kits

These Network Starter Kits contain everything that Windows users need to start networking right away, all in one box. Within a few minutes, you will be able to share files, printers, and access to the Internet; exchange email; or play interactive network games. By taking the best in networking technology and making it simple and affordable, NETGEAR brings the benefits of networking into the hands and budget of small businesses.



SB105 10 Mbps Ethernet Kit

- One 5-Port ethernet hub
- Two PCI dual-speed network cards
- Two 10 foot network cables
- How-to guides

FB105 100 Mbps Fast Ethernet Kit

- One 5-Port fast ethernet hub
- Two PCI dual-speed network cards
- Two 10 foot network cables
- How-to guides

\$B105
\$139.00

Websearch Code ...NET188

\$B105
\$229.00

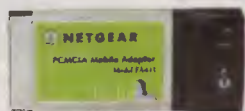
Websearch Code ...NET201

NETGEAR

Netgear FA411

PCMCIA Card

NETGEAR's FA411 10/100 Mbps PCMCIA Mobile Adapter connects notebook PCs to networked computers, peripherals, and the Internet with 100 Mbps performance at a 10 Mbps price. It auto-detects network speed, and supports legacy and major O/S. There's no dongle to lose or break, and the FA411 comes with a lifetime warranty.



\$125.00

Websearch Code ...NET236

Netgear RP114

Router

NETGEAR's RP114 Cable/DSL Web Safe Router with 4-port switch provides you with multiple Web content filtering options, plus browsing activity reporting and instant alerts via e-mail. Parents and network administrators can establish restricted access policies based on time-of-day, URL and URL keywords while sharing high-speed cable/DSL Internet access.



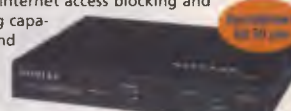
\$395.00

Websearch Code ...NET237

Netgear FR314

Router

NETGEAR's FR314 Cable/DSL Firewall Router provides high-level security for the home and home office, providing worry-free, hardware-based true firewall protection. Share a cable/DSL service among networked computers — Stateful Packet Inspection technology prevents DoS attacks and malicious packets. Includes Internet access blocking and reporting capabilities and is also capable of VPN pass-through.



\$699.00

Websearch Code ...NET240

Opening Hours

Sales lines open:
8.30am until 5.30pm (EST)
Monday to Friday
(except Wednesday 9.00am until 5.30pm)

Pricing

All orders are invoiced inclusive of GST. Prices are subject to change & product availability.*

* See our Terms & Conditions on page 2.

Click here to buy . . .

www.iswh.com.au



Crystal Reports 8.5

Powerful Information Delivery for the Web

With Crystal Reports you can easily deliver rich, interactive content from virtually any data source, publish it to the Web, and integrate it within applications.

Powerful Content Creation

Crystal Reports allows you to create rich content from virtually any data source including XML, OLAP or relational. Add charts, drill-down, alerting, parameter prompts, and hyperlinks and turn reports into compelling, interactive documents or web content. And it's simple to deliver information the way you want in a variety of formats, including XML, DHTML, PDF, RTF and Microsoft Excel.

Flexible Developer Tools

Flexible developer tools for web and Windows developers, a royalty-free runtime license and comprehensive support for development languages makes Crystal Reports the essential reporting tool for database applications. Unleash the power of the Crystal Reports Report Engine through the Report Creation API and the Embeddable Crystal Reports 8.5 Designer Control, allowing your users to design reports from within your applications.

Web Publishing System

Rapidly deploy your reporting solution to the Web with our powerful new web publishing system for easy information sharing. As a special offer to users of the Developer and Professional editions, Crystal Reports includes Crystal Enterprise Standard-free! It is the fastest way to get your high-quality interactive Crystal reports out to thousands of users across the enterprise.

Standard

Design rich, interactive content, within a familiar Microsoft environment. Add-ins for Excel and Access make creating reports from existing Microsoft data a snap. Deliver content the way you want from the PC, to the enterprise and the Web in a various formats.

Professional

Deliver rich, interactive content from virtually any data source and publish it to the Web. Report alerts, parameter prompts over the Web, and export to a variety of formats including PDF, XML, RTF and DHTML provide additional content creation power. Rapidly deploy your reporting solution to the Web with our new web-based report management system.

Developer

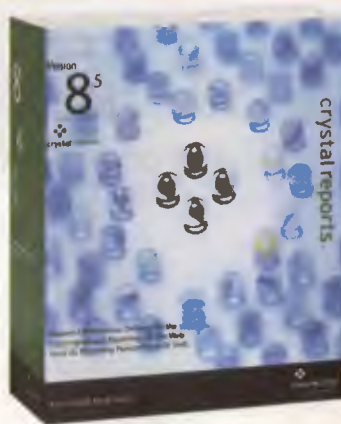
Easily deliver rich, interactive content from virtually any data source, publish it to the Web, and integrate it within applications. Unleash the power through the Report Creation API and the Embeddable Crystal Reports 8.5 Designer Control, allowing your users to design reports from within your applications. Increase developer productivity with rapid application development tools like the Report Designer Component.

Unleash the power of Crystal Reports - with our FREE* eLearning Starter Kit - \$100 value.

Enjoy the benefits of presentation-quality reporting quickly and easily.

Purchase a copy of Crystal Reports 8.5 (full version or full version with Upgrade Advantage, single or 5 pack) between October 8 and December 31, 2001 and receive a free downloadable copy of our Crystal Reports eLearning Starter Kit & a Free T-shirt.

* Valid on all English version product only purchased between October 8th and December 31, 2001. Redemption via Crystal Decisions. Product must be registered to receive the free download. Conditions apply.



Standard
\$395.00
Websearch Code111165

Professional
\$745.00
Websearch Code111166

Developer
\$925.00
Websearch Code111168

DATABASE

MYOB FirstAccounts V3.5

The ideal first accounting system and GST solution for small service-based businesses. Features the innovative MYOB BASlink - which instantly creates a report providing all the GST information your business needs to complete and lodge the Business Activity Statement (BAS).



\$195.00
Websearch Code: MYOB35

MYOB Accounting Plus V11

Suited to both service and inventory based businesses with 1-30 employees, MYOB Accounting Plus maintains MYOB Accounting's ease-of-use and extends the functionality to include:

- Fully integrated payroll automatically updates all accounts the instant a pay is entered.
- Professional time billing module - along with meeting the needs of thousands of different types of small businesses.
- BAS & GST READY



\$499.00
Websearch Code: MYOB33

Crystal Analysis Professional

Powerful analysis for the Web

Crystal Analysis Professional provides easy-to-use interactive high-speed analysis for Microsoft SQL Server (OLAP) Services. It makes multi-dimensional data easy to understand, use and deploy - opening the power of interactive analysis to all.

Crystal Analysis Professional allows end users to easily create snapshots of multi-dimensional OLAP data, stored in MS SQL Server Analysis (OLAP) Services, including rich visualization techniques such as charting, which are then compiled into Excel-style Briefing Books for guided navigation and can be deployed to the Web. It is designed for ease-of-use, with a point-and-click design environment, requiring that interactive report designers have some knowledge of the data but little else.

The result delivers better value to organisations, as more people will now be able to access information from multi-dimensional OLAP data, and gain better insights to help decision-makers impact business performance.

Guided-report analysis.

Deliver interactive analytic reports with different cube views on each page and Analysis Buttons that guide you intuitively through various views of the data. For specific business needs, create information-rich analytic applications such as sales analysis, financial review and analysis, key performance indicator metrics, web log analysis and more.

Rich visualization objects.

Design reports using a wide variety of visualization objects that enhance your interactivity of reports. Add user-defined calculations in any dimension with highlight exceptions and include a chart and text commentary to complete the picture.

Interactive Analysis over the Web.

Zero-client analytic reports are fully interactive over the Web, allowing you to swap dimensions and views, sort and filter data, and add calculations in any dimension you choose - all within your browser.

Flexible and easy to use

Quickly and easily create interactive analytic reports. Provide a drag-and-drop design environment; page templates and powerful application exports that help you quickly create reports. Turning data into actionable information is quick and easy.

Complete control over OLAP data presentation. Build reports by dragging, dropping and sizing worksheets, charts, text, dimension explorers and/or groups on the screen. Customize and allocate as much or as little control over the view of the data as you want. Leverage the power of Microsoft SQL Server Analysis (OLAP) Services.

Powerful, scalable web delivery.

Seamlessly integrates into Crystal Enterprise for enterprise scalability, so you can leverage the power of the Web to provide report access to all users, regardless of the platform or location.

Zero-client (DHTML) web deployment. Optimized for efficient distribution of interactive reports via corporate portal, intranet, extranet and Internet applications. No plug-ins, downloads or firewall issues.

Customized web desktop.

Customize ePortfolio, Crystal Enterprises' web client, to match your corporate identity or let your imagination run wild and create a completely custom interface. All you need is a browser.



\$749.00
Websearch Code111204

COMPUTER PRODUCTS AT ROCK BOTTOM PRICES!!!



INTERNATIONAL SOFTWARE WAREHOUSE

EVERYTHING FOR YOUR PC - DELIVERED AUSTRALIA WIDE



CREATIVITY

Kensington Notebook Microsaver

Security Cable

If you own a notebook computer, chances are one in ten it'll be stolen this year, according to recent FBI crime statistics. One thousand notebook computers are stolen every day, and theft is rising. The good news? You can protect your notebooks with the Kensington Notebook MicroSaver Security Cable, the industry standard for notebook computer security.



Micro Saver & FlyLight BUNDLE

Kensington FlyLight

USB Notebook Light
The FlyLight USB Notebook Light is the perfect companion for the executive on the go. The small, flexible light plugs into your portable computer's USB port to provide gentle, long-lasting illumination anywhere—on a plane, in a presentation room, or relaxing in bed. Shed some light on your laptop with the FlyLight.



\$89.00

Websearch Code: K24031

Opening Hours

Sales lines open:
8.30am until 5.30pm (EST)
Monday to Friday
(except Wednesday 9.00am until 5.30pm)

Pricing

All orders are invoiced inclusive of GST. Prices are subject to change & product availability.*

* See our Terms & Conditions on page 2.

10515 GRAVIS DESTROYER AFTERSHOCK JOYSTICK

Destroyer AfterShock, the first Gravis joystick with rumble feedback, lets you feel the shockwaves from every hit, crash, and explosion. Boneshaking rumble feedback and precision controls bring you all the action and excitement packed into today's most popular games.

More Power – Three buttons, trigger, throttle and hat switch give you the power to win.

More excitement – AfterShock Rumble Feedback means you feel every hit, explosion, and collision right in your hands.

More versatility – Plug-and-play USB connectivity make it fast and easy to install.

More Accuracy – Precision Mode gives you pinpoint control for unbelievable accuracy and maneuverability.



\$35.00

Websearch Code: 130643

10514 GRAVIS ELIMINATOR PRECISION PRO JOYSTICK

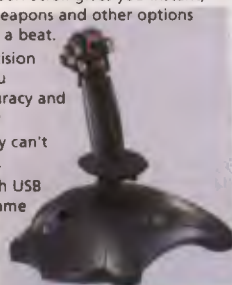
If the twisting handle and throttle aren't enough to get your blood pumping, we've added our revolutionary Weapon Scroll feature that lets you change weapons without slowing down. Then there's our Precision button for unbelievable accuracy and maneuverability to quickly zero in your target. You simply can't lose.

The seven buttons, trigger, throttle and hat switch are all within easy reach.

Use the twist function for rotation and rudder control, or use the twist lock for standard play. The Gravis Weapon Scroll gives you instant, easy access to weapons and other options without missing a beat.

The unique Precision button gives you astounding accuracy and maneuverability when you simply can't make a mistake.

Support for both USB and standard game ports makes installation a cinch.



\$75.00

Websearch Code: GRA046

10512 GRAVIS DESTROYER XTREME JOYSTICK

This easy-to-use joystick is designed for hours of comfortable gaming.

Get even more accuracy and maneuverability by using the Precision button.

You simply can't miss! And USB connectivity makes getting started so easy with plug and play technology.

Precision button gives you pinpoint accuracy and even greater control.

Three buttons, trigger, and throttle help you win every time.

Easy-to-use, durable, and high-quality comfort for all players.

Plug-and-play USB support makes it easy and fast to install on your PC or MAC.



\$38.00

Websearch Code: GRA034

Wacom Intuos2 4x5 USB Tablet

Turn on Photoshop's pressure sensitive power with Intuos2.

With 1,024 levels of pressure sensitivity, nothing unlocks the power of Photoshop, Painter, Paint Shop Pro and other professional graphics applications like Intuos2.

The Intuos2 Grip Pen features Wacom's patented batteryless, cordless technology with 1,024 levels of pressure sensitivity. This cushioned pen reduces your grip effort by up to 40% so that you can work comfortably with less stress. Customers tell us that being able to use a pen helps them alleviate mouse and trackball induced repetitive stress injuries.

All Intuos2 professional graphics tablets come with an highly accurate, cordless, ball-free mouse complete with scroll-wheel.

System requirements for USB connection:

PC: PC running Windows 98, 2000, Millennium or XP; powered USB port, CD-ROM drive & color monitor.

Mac: iMac or PowerMac with Mac OS 8.5, 9 or 10.1; powered USB port, CD-ROM drive & color monitor.



Includes Pen & Mouse

\$399.00

Websearch Code: WAC050

WACOM

Wacom Garphire2 4x5 USB Tablet

Graphire2 is for anyone who wants to get more from their photos. Have fun moving people around in photos, colorizing old black-and-white images, or just cleaning up scratches and imperfections.

Graphire2 includes:

- * The Graphire2 Pen, complete with programmable DuoSwitch, built-in eraser and 512 levels of pressure sensitivity.
- * The three-button cordless, ball-free Graphire2 Mouse complete with fingerwheel.
- * The Graphire2 tablet with removable pen stand and transparent overlay for easier tracing.
- * Adobe Photoshop LE & Corel Painter Classic - so you can edit your favorite photos, or simply draw and paint on your computer.

System requirements

PC: PC running Windows 98, 2000, Millennium or XP; Powered USB port, CD-ROM drive & color monitor.

Mac: iMac or PowerMac with Mac OS 8.5, 9 or 10.1; powered USB port, CD-ROM drive & color monitor.



Includes Pen & Mouse

\$175.00

Websearch Code: WAC039



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Palm m500

Travel Light, Expandable, Internet-capable.

It's the coolest, lightest handheld on the planet. Two ways to expand: A standard Secure Digital/MultiMediaCard card slot and Palm™ Universal Connector let you add storage, backup, business productivity and enterprise applications, wireless modems, content and more. Palm Mobile Connectivity Software with a modem or data-enabled mobile phone lets you wirelessly browse the Web, send and receive corporate e-mail and short text messages, or access documents and spreadsheets on the go. The Palm OS® 4.0 features enhanced security options, the ability to set silent or vibrating alarms and more.



RentSmart \$8.50 pw

\$775.00

Websearch CodeUSR501

Palm m100

Take control with the Palm™ m100 handheld.

Designed to help you meet the unique demands of your life, the affordable Palm™ m100 handheld allows you to replace your paper-based organizer with confidence. Keep track of all of your appointments, addresses, and to-dos. Even use it to jot notes as fast as with pen and paper. Express your personality with colourful snap-on faceplates. Take advantage of thousands of third-party applications, and even download information from the Internet for offline browsing. Your information is also secure with one-touch data exchange and backup with your PC or Macintosh.



\$295.00

Websearch CodeUSR153

Palm m100

Slim leather case

A distinctive way to carry your handheld. Beautifully crafted in soft, black Nappa leather. A great way to organize your other essentials.

Palm not included



\$59.00

Websearch CodeUSR164

Palm m125 Handheld

Expandable and connectable, the newest handheld sports the sleek design and fun faceplates of the m100 series, plus the coveted expansion slot previously found only in the m500 family. Personalize your handheld by entering your addresses, appointments, and to-dos. Customize even further by adding content or extra memory via the Expansion Card slot. Or, snap a wireless modem, GPS receiver, or digital camera to the Universal Connector at the bottom.



RentSmart \$6.19pw

\$565.00

Websearch CodeUSR505

Palm m105

Simple, convenient and fun.

If you want to simplify your life and still have plenty of room to grow, take a closer look at the Palm m105 handheld. It has all the cool features of the Palm m100, including an interchangeable faceplate. Plus, it has 8MB of memory, the mobile internet kit, and a HotSync® cradle for fast and easy backup. Download your email for convenient off-line viewing or use the included Mobile Internet Kit with your compatible modem to wirelessly access email or Web information from anywhere.



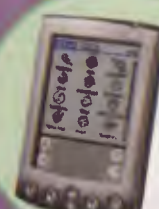
\$355.00

Websearch CodeUSR500

Palm m505

Grow as your needs grow.

The new Palm™ m505 handheld opens a world of possibilities. It has rich, 65,000 color support and is completely customizable, thanks to two expansion features. The standard Secure Digital/MultiMediaCard slot and the Palm Universal Connector let you add storage, applications, content, and add-ons, like a portable keyboard, wireless modem, camera, and more. Right out of the box you can use your Palm m505 handheld to manage your e-mail, view and edit spreadsheets and documents; view eBooks, video clips and photos, or browse Web content offline. Mobile Connectivity software (included) offers wireless connectivity to the Internet; simply connect your Palm m505 handheld to a modem or data-enabled mobile phone.



RentSmart \$10.69 pw

\$975.00

Websearch CodeUSR502

Palm m105

Faceplate Cover

Go to www.iswh.com.au for other colours and designs



\$26.95

Websearch CodeUSR166

Palm m500

Leather Wallet Case

Beautifully crafted of soft black leather with a slim design that's a perfect fit for your pocket or purse. This durable case safely stores your handheld. It's also a full-featured wallet.

Palm not included.



\$75.00

Websearch CodeUSR165

Palm m100

Stylus 3 Pack

Replenish your stylus stash. This convenient, affordable multi-pack lets you keep extra stylus at home, in the office, or in the car. Each handy pack contains 3 black plastic stylus for your handheld.



\$13.95

Websearch CodeUSR159

COMPUTER PRODUCTS AT ROCK BOTTOM PRICES!!!



INTERNATIONAL SOFTWARE WAREHOUSE

EVERYTHING FOR YOUR PC - DELIVERED AUSTRALIA WIDE



Toshiba Satellite Series

Providing an attractively priced, truly comprehensive notebook. Ideal for small business or the home office, Satellite is fully equipped to help you power through your working day. With cutting edge technology and more power than you'll probably ever use, Satellite will become indispensable as your working companion. The multi-award winning Satellite Series continues to provide the business person who seeks value with all the power and functionality required for their day to day computing tasks. With a complete new lineup, the Satellite range now offers improved expansion capabilities, simpler user operation, the latest visual and sound technologies, as well as a great new look and feel.

Model 1800 shown

Model: **1800 (WIN ME)**
Processor: Pentium III 850MHz with SpeedStep
Cache: 256KB Integrated Level 2
RAM: 64MB
HDD: Int 15GB EIDE HDD
CD-Rom: Int 8x DVD-Rom
FDD: Int 1.44MB 3.5" FDD
Modem: Integrated 56K V.90, 10/100 Base-TX
Display: 13.3" Colour TFT display at 1024 x 768 resolution
Ports: 2xPC Card slots supporting 2xType II or 1xType III, 1xSerial, 2xUSB, 1xParallel, 1xPS/2, External SVGA connector, infrared port, modem port, Mic & Headphone port
Weight: 3.2kg
OS: Windows ME
Warranty: 1 Year Parts & Labour

Model: **1800 (WIN XP HOME)**
Processor: 1800 with Windows XP Home edition Intel Celeron 900 MHz
Cache: 128KB integrated L2 cache
RAM: 128MB SDRAM RAM (exp to 512MB)
HDD: Int 15GB EIDE HDD
CD-Rom: Int 24X CD-ROM
FDD: Int 3.5" 1.44MB FDD
Modem: Int 56K modem
Display: 13.3" colour TFT display at 1024x768 resolution
Ports: 2x PC card slots supporting 2xtype11 or 1xtype111, 2xUSB ports, 1xserial, 1xparallel, 1xps/2, tv out port, infrared port, modem port, Mic & headphone port
Weight: 3.2kg
OS: Windows XP Home
Warranty: 1 Year Parts & Labour

\$2925.00
Websearch Code...TOSH80

RentSmart \$28.69 pw

\$2625.00
Websearch Code...TOSH95

RentSmart \$25.75 pw

Toshiba Satellite Pro Series

This is the perfect, no compromise, solution for business professionals. Satellite Pro is a feature driven notebook, packed with the latest technology. When your multimedia presentations have to be impressive. When your working environment extends beyond your office walls. Satellite Pro is the performance notebook for high performing individuals with a range of benefits such as:

- Simple expansion to connect to desktop based peripherals including those based on infrared, USB and CardBus systems
- Fantastic mobile multimedia performance with the graphics capabilities, sound processors and integrated speakers

Model: **4600/750**
Processor: Pentium III 750MHz with SpeedStep
Cache: 256KB Integrated Level 2
RAM: 128MB
HDD: Int 15GB EIDE HDD
CD-Rom: Int 8x DVD-Rom
FDD: Int 1.44MB 3.5" FDD
Modem: Integrated 56K V.90, 10/100 Base-TX
Display: 14.1" Colour active matrix TFT display at 1024 x 768 resolution
Ports: 2xPC Card slots supporting 2xType II or 1xType III, 32-bit card bus compatible, 2xUSB, 1xSerial, 1xParallel, external SVGA display connector, 1xIrDA infrared, PS/2 keyboard port, PS/2 mouse port, modem port, LAN port
Weight: 3.2kg
OS: WIN 98
Warranty: 1 Year Parts & Labour

\$3499.00
Websearch Code...TOSH82

RentSmart \$34.32 pw

Model: **4600/850**
Processor: Pentium III 850MHz with SpeedStep
Cache: 256KB Integrated Level 2
RAM: 128MB
HDD: Int 20GB EIDE HDD
CD-Rom: Int 8x DVD-Rom
FDD: Int 1.44MB 3.5" FDD
Modem: Integrated 56K V.90, 10/100 Base-TX
Display: 14.1" Colour active matrix TFT display at 1024 x 768 resolution
Ports: 2xPC Card slots supporting 2xType II or 1xType III, 32-bit card bus compatible, 2xUSB, 1xSerial, 1xParallel, external SVGA display connector, 1xIrDA infrared, PS/2 keyboard port, PS/2 mouse port, modem port, LAN port
Weight: 3.2kg
OS: WIN 98
Warranty: 1 Year Parts & Labour

\$3549.00
Websearch Code...TOSH96

RentSmart \$34.81 pw

Model: **4600/900**
Processor: Pentium III 900MHz with SpeedStep
Cache: 256KB Integrated Level 2
RAM: 128MB
HDD: Int 30GB EIDE HDD
CD-Rom: Int 8x DVD-Rom
FDD: Int 1.44MB 3.5" FDD
Modem: Integrated 56K V.90, 10/100 Base-TX
Display: 15.1" TFT display at 1024 x 768 resolution
Ports: 2xPC Card slots supporting 2xType II or 1xType III, 32-bit card bus compatible, 2xUSB, 1xSerial, 1xParallel, external SVGA display connector, 1xIrDA infrared, PS/2 keyboard port, PS/2 mouse port, modem port, LAN port
Weight: 3.2kg
OS: WIN 98
Warranty: 1 Year Parts & Labour

\$4515.00
Websearch Code...TOSH90

RentSmart \$42.20 pw

Toshiba Portege Series

Ready to work when you are, the Portege 4000 delivers an advanced combination of ultra-portability and integrated functionality. Uncompromised for take-anywhere computing, your investment is well protected with wireless communication, common docking and a flexible slim SelectBay™. Forged in magnesium, the Portege 4000 portrays vast success whilst delivering absolute reliability - just the qualities you require to perform brilliantly on the road and in the new world.

- One touch connection to Desktop components with optional advanced Port Replicator

Model 4000CT shown

Model: **4000 (WIN 98SE)**
Processor: Pentium III 750MHz
Cache: 256KB
Memory: 128MB RAM (exp to 1GB)
Display: 12.1" TFT
HDD: 20GB HDD
CD-Rom: 8X SelectBay DVD
Modem: 56K modem
Network: 10/100 LAN, Wireless LAN, SD media slot
OS: Win 98SE
Warranty: 3 Year Parts & Labour

\$4868.00
Websearch Code...TOSH91

RentSmart \$45.50 pw

Model: **4000 (WIN 2000)**
Processor: Pentium III 750MHz
Cache: 256KB
Memory: 128MB RAM (exp to 1GB)
Display: 12.1" TFT
HDD: 20GB HDD
CD-Rom: 8X SelectBay DVD
Modem: 56K modem
Network: 10/100 LAN, Wireless LAN, SD media slot
OS: Win 2000
Warranty: 3 Year Parts & Labour

\$5049.00
Websearch Code...TOSH92

RentSmart \$46.02 pw

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www.iswh.com.au



Belkin Bridge Koskin Bag

Made from stylish and durable Koskin material with all the quality amenities you would expect from a Belkin product including notebook and cellular compartments, business card and pen/pencil holders, and a diskette mesh pocket.



\$85.00

Websearch Code . . . BEL171

Belkin Park Avenue Bag

The Park Ave is the ultimate notebook computer carrying case. It is constructed of top grain genuine nubuck leather known for its soft supple feel, and a steel frame laminated with high-density foam encasing the notebook compartment.



\$305.00

Websearch Code . . . BEL172

Belkin Parkway Backpack

The Parkway offers a radical new design to the notebook carrying case. The unique, shoulder-to-waist carrying strap provides security, convenience and style while carrying a notebook computer.



\$109.00

Websearch Code . . . BEL173

Canon BJC 55 Portable

The ultra-compact, portable BJC-55 Color Bubble Jet Printer is a true powerhouse, delivering all the features you need-from a lightweight design and long-life battery to easy USB and wireless connectivity-to produce impressive documents in the office or on the road.

- Weighs only 900 grams, including the battery
- High Speed up to 5.5 ppm
- USB



\$565.00

Websearch Code . . . CAN316

RentSmart \$6.19 pw

Canon BJC 85

Uses half your briefcase not half your desktop!

- USB connectivity
- Up to 5ppm in monochrome
- Up to 2ppm in colour
- 720 x 360 dpi
- Optional 4 colour printing



Now with USB

\$375.00

Websearch Code . . . CAN287

NetComm TruConnect56 Combo PCMCIA

This convenient, high speed integrated Ethernet and modem PC card with built-in connectors uses a single PCMCIA slot for both your LAN and modem connection, making it the easiest, most cost-effective solution for mobile users. It supports modem speeds up to 56Kbps using either V.90 or K56flex standards.



\$435.00

Websearch Code . . . NET187

D-Link PCMCIA 10/100

- 10/100Mbps dual speed NWAY interface
- Half/full duplex supported in 10Base-T mode
- Single RJ-45 shielded connector
- UTP/STP cabling supported
- Auto-correction of reverse polarity
- Passes IEEE 802.3 1500V high pot test



- Menu-driven network O.S. installation program
- Complete driver support

\$150.00

Websearch Code . . . DLK018

FA410tx 10/100Mbps PCMCIA Network Card

- 10/100 Mbps Network Performance
- Guaranteed Compatibility
- Simple One-Step Installation
- 32 Bit Card Bus or 16 Bit PCMCIA compatibility



NETGEAR

\$155.00

Websearch Code . . . BAY171

WinFax Pro

WinFax PRO 10.0 is the #1 choice for sending, receiving and managing faxes. Easy to set up, learn and use. Integrates with your key business applications. Version 10.0 lets you send and forward faxes via email. When image clarity is vital, you also have the option of sending photo-quality faxes. For simplified project management, store faxes in the folders of your choice.

- Telephone connection needed.



Educational Pricing Available

\$118.00

Websearch Code . . . SYM210

D-Link DFE-650TXD

Fast Ethernet 10/100 dual speed Nway PCMCIA Card with RJ-45 connectors, NO DONGLES, DIRECT PORT.

PCMCIA v2.x, PC Card 95 and JEDIA v4.x Type II support, Full Plug and Play, Full duplex supported, Auto-detects IRQ & I/O addresses, Netware, SCO Unix, WindowsNT Compatible.



\$145.00

Websearch Code . . . DLK046

D-Link
Building Networks for People

Belkin USB BusPort Mobile

- Add USB capabilities to your Notebook PC or Apple PowerBook quickly and easily
- Instantly connect USB devices such as USB printers, modems, speakers, digital cameras and scanners
- Supports 32-bit CardBus PC Card Type II Slot
- Provides 2 USB Type A ports
 - Easy drop-in and user friendly Plug-and-Play installation.



\$189.00

Websearch Code . . . BEL129

pcAnywhere 10

pcAnywhere™ is the No.1 seller for fast, easy access to any PC. If you need to work from home or on the road, pcAnywhere lets you connect to your office PC to retrieve files or run desktop applications. If you're an IT professional, pcAnywhere lets you remotely support users and manage servers effectively.

For Windows® 95/98/NT/2000/ME.

\$245.00

Websearch Code . . . 111083



symantec.

COMPUTER PRODUCTS AT ROCK BOTTOM PRICES!!!



INTERNATIONAL SOFTWARE WAREHOUSE

EVERYTHING FOR YOUR PC - DELIVERED AUSTRALIA WIDE



ANTI-VIRUS & BUSINESS

Project 2000

Microsoft Project 2000 provides you with the flexibility needed to collaboratively plan and track projects and deliver the results your business demands. It is the single planning tool for everyone in an organisation. Includes 1 Project Central client license



Upgrade
\$455.00
Websearch Code.....MS5281

Full Product
\$1095.00
Websearch Code.....MS5280

Windows 2000 Professional

Windows 2000 Professional is the best desktop and mobile operating system for businesses of all sizes. It's the easiest, most reliable Windows yet because it combines the reliability, security, and manageability of Windows NT Workstation with the best business features of Windows 98. In addition to removing unnecessary desktop items, Windows 2000 Professional introduces Personalised Menus, a new "smart" feature that adapts the Start menu to the way you work by showing you the applications you typically use most often.



MS Prof. Win 2000 NT4 UG
MS5596 **\$325.00**

MS Prof. Win 2000 Win95/98 UG
MS5597 **\$485.00**

Full Product
\$695.00
Websearch Code.....MS5598

Vet Anti-Virus Net Surfer

Aussies make the best surfers!

Vet is one of the leading anti-virus products in the worldwide market, consistently performing well in independent tests.

- Complete virus prevention • Internet virus protection
- Unlimited Web upgrades/updates for 1 year
- Unlimited phone/email support for 1 year

Vet Anti-Virus Premium

Protection for your PC against an increasing rate of viruses.

However you use your computer, you need to safeguard against viruses. Protect your PC with Vet Premium. This offers you all the advantages of Vet Net Surfer with the additional benefit of mailed quarterly upgrades - delivered to your home or office. It is then our responsibility to remember that it's time to upgrade your anti-virus protection.

Vet For NT Server & 5 Clients

Protection for the Heart of your Network.

Viruses can also be spread alarmingly fast across networks so take advantage of Vet's superior protection for NT Server which offers excellent functionality for the systems administrator. Vet's email notification feature allows an email to be sent to the administrator when a virus attack occurs anywhere on the network.



\$99.00
Websearch Code.....VET007



\$85.00
Websearch Code.....VET006



\$645.00
Websearch Code.....VET004

GOLDMINE 5.0

Gather, store, and manage information to increase sales and ensure customer satisfaction.

- Easy access to history and other account details puts the big picture on your small screen
- Organized, highly detailed contact management and tracking helps you decrease the length of your sales cycle
- Use your Web site for instant data capture to service, identify and qualify prospects. Automatically import this information into GoldMine 5.0 to begin the follow-up process immediately.
- Rely on the automated marketing tool. Automated Processes to provide personalized and targeted messaging automatically, even when you are away from the office.
- Keep track of revenue streams and marketing effectiveness to help you focus on activities that increase your profit.



- Instantly view sales vs. quota analysis, call volume or completed activities in a graphical or numeric on-screen report.
- Automatically and logically link email to contact records.
- Store all incoming and outgoing mail in one central location.

\$339.00
Websearch Code.....GOL001

GOLDMINE Express

Powerful Contact and Calendar Management for individuals or workgroups of up to 4 users.

Calendar: Use the calendar to schedule calls, appointments and meetings. View calendars day week month or year to make to most of your time.

E-mail: The built in e-mail centre automatically links messages to the appropriate contact record. Also, set up rules to act as a virtual "personal assistants" by automatically filtering and filing incoming and outgoing messages.

Manage Contacts and Accounts: Manage every detail for every contact and always have information at your fingertips. Customisable views allow you to collect the information that meets your needs. For road warriors, GoldMine Express includes a synchronisation wizard to share information with Palm, Visor and windows CE devices.

Sales Tracking: Provides the ability to evaluate sales forecasts and review accounts.

Correspondence: The Document Management Centre can manage letters, faxes, e-mail templates and other important correspondence. Save even more time by setting up frequently used faxes, memos, and letters for one click printing



\$189.00
Websearch Code.....GOL002

Click here to buy . . .

www.iswh.com.au



Compaq iPAQ Pocket PC H3850

Allows users to add CompactFlash memory cards and PC Card modems, among other accessories. Ships with a screen-cover sleeve, a welcome improvement over the black slipcover that comes with other iPAQs. Also, gamers will be glad to know that the buttons below the screen can now recognize two simultaneous button presses. This is vitally important when playing games that require you to move and fire at the same time. Clearly, the addition of the SD card slot and the more colourful screen make the iPAQ 3850 a compelling device.

Dimensions: 8.4cm x 1.6cm x 13.3cm
Weight: 200 grams
Memory: 32 MB flash
Warranty: 1 year warranty
Operating System: Microsoft Pocket PC 2002
Display: 3.8" TFT active matrix
RAM: 64 MB SDRAM
Processor: SA-1110 206 MHz Intel



BONUS 4 HOURS TRAINING*

NEW

*Buy an iPAQ H3800 or H3700 series handheld before 31 December 2001 and you will receive 4 hours of end user training from Compaq absolutely free (valued at \$185). Ring Compaq on 1300 302 481 to claim. Conditions apply.

RentSmart \$14.90 pw

\$1,359.00
 Websearch Code .COM201

Compaq iPAQ Pocket PC H3760

Slim and Powerful - Sleek, elegant design, brilliant colour TFT screen, fastest available processor. Expandable, Versatile - iPAQ Expansion Packs provide an extraordinary array of functionality. Forward-reaching - Pacesetting iPAQ Pocket PC showcasing Microsoft Pocket PC 2002. Designed to ride along on the voyage of life - in your pocket or mounted to your mountain bike. It's not much bigger than a calculator and comes standard with applications like Microsoft Pocket Word, Excel, Outlook, Internet Explorer, and Windows Media Player.

Dimensions (WxDxH): 8.4cm x 1.6cm x 13.0cm
Weight: 178g
Memory: 32 MB flash
Warranty: 1 year warranty
Operating System: Microsoft Pocket PC 2002
Display: 3.8" TFT active matrix
RAM: 64 MB SDRAM
Processor: SA-1110 206 MHz Intel



BONUS 4 HOURS TRAINING*

NEW

RentSmart \$11.24 pw

\$1,025.00
 Websearch Code .COM200

FlowCharter 7.0

The most intuitive way to create business diagrams.

Visually communicate ideas, information and data using this best-selling software.

FlowCharter 7.0 creates incredibly powerful, interactive diagrams of just about everything imaginable

- Business processes
- Workflows
- Computer Networks
- Web Sites
- Database Structures
- and much more...

Incredibly useful in all areas of business management including Sales and Marketing, Finance, Human Resources and for IT Professionals.



Licensing and Academic versions available

\$315.00
 Websearch Code .MGF008

iGrafx FlowCharter 2000 Professional

The power-packed successor to ABC FlowCharter!

iGrafx FlowCharter™ 2000 Professional from Micrografx gives you structured diagramming power with unique built-in intelligence, providing invaluable new ways to visualize solutions for real-world business problems. iGrafx FlowCharter makes it easier than ever to diagram business processes, networks, organizational structures, web content, and much more. Superior business-oriented functionality includes seamless Microsoft Office compatibility, robust HTML support, and powerful VBA 6.0 extensibility, as well as network-enabled application deployment, media management, and collaboration tools.



Licensing and Academic versions available

\$675.00
 Websearch Code .111027

Micrografx Designer 9

Everything you need for technical illustration, image editing and web graphics

Providing precision drawing and versatile publishing tools along with 55+ import/export filters including CAD, Adobe PDF and Macromedia Flash.

Also included, Picture Publisher 9 is an innovative professional image-editing application with incredible visual effects and functionality.

Designer®

New Product!



Licensing and Academic versions available

\$875.00
 Websearch Code .MGF123

HANDHELD & GRAPHICS

Franklin eBookMan 901 Traveller

Read at night using the backlight or listen to music through the built-in speaker or headphone jack. Look up information on where to stay and what to see. Stores up to ten 400 page novels. Music Player supporting MP3, Digital Voice Recorder and eBook Reader all in one. 8MB with 64MB Flash card slot.



PLUS \$100 CASHBACK*

\$299.00

Websearch Code .FRA001

* Every customer who purchases an eBookMan will receive a \$100 cash bonus, redeemable from Franklin. Ask for your cashback form when ordering. Conditions apply. Valid till 31/12/01.

Franklin BookMan 911 Executive

16MB on-board memory upgradable with 64MB Flash cards. Built-in digital voice recorder. Listen to the latest voice books or music from your MP3 files while you drive, using the optional car adaptor. Music Player supporting MP3, Digital Voice Recorder and eBook Reader all in one. 64MB Flash card slot. 16MB on board. Backlight.



PLUS \$100 CASHBACK*

\$399.00

Websearch Code .FRA002

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COMMUNICATIONS

10/100Mbps Fast Ethernet Adaptor

High-performance auto-sensing 32-bit 10/100Mbps Fast Ethernet LAN adaptor for desktop PCs. N-way auto-negotiation for automatic selection of the network speed and full/half duplex mode with the partner. Easy installation with a single RJ-45 port for either 10BASE-T or 100BASE-TX fast Ethernet support. Software drivers included for Win 95/98, Millennium, NT and 2000.

\$29.00

Websearch Code...NET234

LAN Key USB 10/100 Adaptor

Logging on to a Local Area Network (LAN) has never been easier with this Plug-and-Play USB LAN Key from NetComm. There are no cables to open, dongles to break, PC Cards to swap or NIC cards to insert. Laptop users can keep both PC Card slots free and log on to any Ethernet 10 based-T or 100 Base-TX network via their USB port.

\$79.00

Websearch Code...NET235

NetComm SmartModem56 Secure, dial-back remote access

The number one position in speed for data, fax and voice transfer with the combined security of DES encryption and password protection. Unique dial-back feature for secure remote access.

\$445.00

Websearch Code...NET142

What's new at NetComm?

NetComm - Smart Sharing Solutions

Smart Access

Router, Hub and firewall all-in-one!

NetComm's SmartAccess is a Plug & Play network gateway which allows multiple PC users in a home, or office to network their systems, share Internet access and local resources safely, simply and easily. With the inclusion of a serial and Broadband port, it has the flexibility to support growing businesses, as there needs change. An analog modem can be connected to the serial port to provide dial-in remote network or dial-up ISP access. SmartAccess gives you easy-to-configure Internet firewall preventing unwelcome visitor access.

FREE 3 YEAR WARRANTY

Go to www.netcomm.com.au for details

\$339.00

Websearch Code...NET231

Smart i-Share 56

Winner of the PC Authority Labs Award for Quality

The Smart Internet Sharing Solution! Smart i-Share is the Plug & Play networking and Internet access solution for wherever two or more PCs are gathered but not yet connected.

FREE USB LAN KEY*



*When ordering ask for your "Dream Deals" claim form and complete and return to Netcomm for redemption of free product. Valid till 31st January 2002. Conditions apply.

FREE 3 YEAR WARRANTY
Go to www.netcomm.com.au for details

\$465.00

Websearch Code...NET217

Choose the right NetComm Internet Gateway for your needs!

| NetComm Product | CABLE/DSL modem (external) | Serial Port (external modem) | 56K modem built-in | Embedded Linux | Four-port Ethernet Hub | Firewall | Produces 'always on' heartbeat |
|-----------------|----------------------------|------------------------------|--------------------|----------------|------------------------|----------|--------------------------------|
| Smart i-Share | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| SmartAccess | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ |

Netcomm Network Attached Storage.

NAS-1000 Disk Server Series.

Now you can add gigabytes of accessible, fast, hard-disk-drive storage to your network, without the cost, space, set-up and maintenance hassles of a fully-fledged file server. Ideal for small to medium business or corporate departments, NetComm's NAS-1000 with its easy-to-use configuration wizard and in-built print server allows you to set-up and access network file storage and share a printer in minutes.

NetComm's NAS-1000 family of compact and affordable Network Attached Storage (NAS) is available in a range of sizes to suit the storage needs of today's networks, as and where you need it. The only decision you need to make is how and where to use it.

40GB, 60GB and 80GB also available - call for prices.

RECEIVE AN EXTRA 20GB FREE*



\$1239.00

Websearch Code...NET244

*When ordering ask for your "Dream Deals" claim form and complete and return to Netcomm for redemption. Valid till 31st January 2002. Conditions apply.

NetComm DREAM DEALS

NetComm Roadster II 56 USB

Voted Australia's best USB modem for all-round quality (ICON, SMH May 5-6, 2001). Giving you the fastest, easiest path to connecting with your ISP. Couple this with the proven increased data transfer speeds of USB and you will find yourself working at the fastest speeds available with an analogue modem.

- Simultaneous Voice & Data Transmission
- Speakerphone & Voicemail
- Compatible with Windows 98 & 2000
- Includes desktop faxing & voice software

*When ordering ask for your "Dream Deals" claim form and complete and return to Netcomm for redemption of Greater Union movie pass. Valid till 31st January 2002. Conditions apply.



FREE MOVIE TICKET!*

\$199.00

Websearch Code...NET028

NetComm Roadster II 56 Ultra

This is more than a modem - the Roadster Ultra also acts as an "Out of Office Assistant", giving you multiple voice mailboxes, one for each member of the office. Features NetComm's own enhanced Ultra Connect technology allowing you to connect faster and stay connected!

- K56flex & V.90 connectivity
- Simultaneous Voice & Data transmission
- Speakerphone & Voicemail
- Includes desktop faxing and voice software

*When ordering ask for your "Dream Deals" claim form and complete and return to Netcomm for redemption of Greater Union movie pass. Valid till 31st January 2002. Conditions apply.



FREE MOVIE TICKET!*

\$185.00

Websearch Code...NET207

NetComm Wave SP 56

The NetComm Wave offers speed and reliability, giving business and home users the benefits of 56K Internet and e-mail access, video-conferencing and long-distance Internet phone calls. Included is a headset with built-in boom microphone plus voice and fax software.

- SVD - Simultaneous Voice & Data
- Speakerphone & Voicemail
- Digital line protection
- Includes desktop faxing and voice software

*When ordering ask for your "Dream Deals" claim form and complete and return to Netcomm for redemption of Greater Union movie pass. Valid till 31st January 2002. Conditions apply.



FREE MOVIE TICKET!*

\$185.00

Websearch Code...BAN064

Click here to buy . . .

www.iswh.com.au



Pinnacle Studio DV

With the Studio DV range you can take Hollywood home!

Pinnacle Studio DV and your creativity are all you need to turn your home movies into masterpieces. Studio DV is a complete solution combining award winning software with a DV/Firewire video capture board. The Pinnacle Studio software combines a simple, drag and drop interface with professional features like:

- Captures 1 hour of video in only 150MB of disk space (Smart Capture)
- Add titles, narration, transitions
- Movie of any length (no 2Gb production limit)
- Output to tape
- Frame capture
- Slow / Fast Motion (except the Clip version)
- Works with ALL DV / Digital 8 camcorders
- Includes Hollywood FX for Studio for fantastic 3D transitions (Studio DV ver7, Studio DV+ ver 7 only)
- Output to MPEG1/2, WEB, VCD, SVCD and DVD (Studio DV ver7, Studio DV+ ver 7 only)
- Output to VHS and SVHS (Studio DV + only)

**Studio DV Clip
Studio DV hardware
and Studio 7 SE**

\$275.00
Websearch Code ...PIN039

**Studio DV ver 7
Studio DV hardware and
Studio 7 with HFX**

\$365.00
Websearch Code ...PIN038

**Studio DV + Studio DV
hardware with VHS/SVHS
output and Studio 7 with HFX**

\$460.00
Websearch Code ...PIN033



MULTIMEDIA

Pinnacle Studio ONLINE

Share your video on the WEB!

Edit your videos using this USB to Video cable, add titles and sounds with the Studio software. Once finished, by the click of a button, upload your video to the Studio online web site and allow your friends and family to view them thanks to Microsoft Media technology (MPEG 4). No need for download then just click on the link and the video will be streamed to your desktop wherever and whenever.



\$185.00
Websearch Code ...PIN031

Pinnacle Studio VCD

Turn your PC into a Video CD Recording Station Studio VCD allows you to back up your videos up to 80 minutes onto a CDR or CD RW disc.

- PC or MAC
- DVD Player that can read DRW
- Video CD players Studio VCD is your complete VCD creator
- MPEG 1 I/P real time encoder solution with separate CD writer application
- Easy to use trimming tool for recorded MPEG streams using a RealTime MPEG 1 encoder recording application
- PCI Capture card
- VHS & SVHS Inputs
- VCD Encoder
- Studio Demo CD
- Nero 5 Burning ROM



P PINNACLE SYSTEMS

\$215.00
Websearch Code ...PIN032

Pinnacle Express

Express is a new generation of software that will allow you to convert your home movies filmed onto a CD.

- Capture your video from your DV camcorder
- Create CDs or DVDs for your DVD player
- Detects each scene on your DV tape and create an interactive menu that can be customized
- up to one hour onto a CD at VHS quality (VCD), 1/2 Hour at SVHS quality (SVCD) or 15 minutes at DVD quality (mini DVD onto CD)
- Compatible with most DVD players (all JVCs and Philips are 100% certified) (incompatible with early DVD players that does not support CDR Media)
- Requires a CDRW or DVD RW installed



\$129.00
Websearch Code ...PIN040

Pinnacle Studio 7

Simply the best movie-making software available today. Made by the same people who've won seven Emmy Awards creating video-editing gear for the Hollywood pros, Studio 7 lets you turn your home movies into Hollywood masterpieces. Now with Studio 7.0 software anyone with a FireWirecard or other PC video capture hardware can take advantage of it's great features to make amazing video. Software only.



P PINNACLE SYSTEMS

Upgrade
\$199.00
Websearch Code ...PIN036

Full Product
\$245.00
Websearch Code ...PIN035

Pinnacle Studio DC10+version 7

Pinnacle Studio DC10+ version 7 and your creativity are all you need to turn your home movies into masterpieces. Studio DC10+ version 7 is a complete Solution combining award winning Pinnacle Studio video editing software with a Hi 8 and VHS video capture and output board. The Pinnacle Studio software combines a simple, drag and drop interface with professional features like fast/slow motion, custom audio, over 100 transitions including Hollywood FX 3D effects, advanced color correction, contrast and brightness control, and more.



\$465.00
Websearch Code ...PIN042

Pinnacle DV 200

Pinnacle DV 200 the fastest DV editing card

- Firewire 3 port card
- Pinnacle DV2 Codec for near real time or instant editing (expendable technology)
- Export to VCD, SVCD, Web Streaming
- Adobe Premiere 6 Full version
- Adobe Photoshop LE
- Pinnacle Impression and Title Deko
- Hollywood FX Copper and Alpha Magic



P PINNACLE SYSTEMS

\$945.00
Websearch Code ...PIN041

DV500 PLUS - Gold Edition

DV500 PLUS is the ONLY real-time editing solution which takes advantage of features such as:

- Real-time multi-track audio mixer
- Real-time 16:9 widescreen effects, transitions and titles
- TitleDeko RT with video output for title creation previews
- Real-time image correction for colour and brightness controls
- Export to VCD and SVCD
- Adobe Premiere 6
- Adobe Photoshop LE
- Pinnacle Impression DC-Pro
- Pinnacle Hollywood FX Copper
- Pinnacle Hollywood FX Alpha Magic
- Pinnacle Instant Video Technology



\$1840.00
Websearch Code ...PIN037

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CONNECTIVITY & STORAGE

Borland Delphi 6 Pro



Full
\$2149.00

Websearch Code ...BOR029

Upgrade
\$849.00

Websearch Code ...BOR028

Borland JBuilder 6 Pro



CALL FOR PRICING!

Opening Hours

Sales lines open:
8.30am until 5.30pm (EST)
Monday to Friday
(except Wednesday 9.00am until 5.30pm)

Pricing

All orders are invoiced inclusive of GST. Prices are subject to change & product availability.*

* See our Terms & Conditions on page 2.

Belkin 4-Port FireWire Hub

Enjoy the speed, accuracy and ease of FireWire-enhanced connections with a compact hub design that leaves your precious desktop surface to you. You'll maximise your use of ultra-fast disk, Zip and Optical drives, scanners, printers and other peripherals with the Belkin 4-Port FireWire Hub.



\$149.00

Websearch Code ...BEL169

Belkin USB Pocket Hub 4 port

Connect your PC or Mac computer instantly to your USB devices, including printers, scanners, external mice and keyboards, joysticks, digital cameras, or other USB hubs - without restarting your computer. An AC adaptor is included for devices that require additional power.



\$69.00

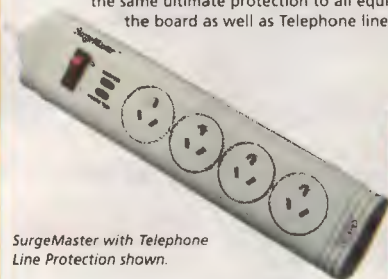
Websearch Code ...BEL160

Belkin SurgeMaster

Are you protected?

The Belkin 4 plug surge board offers ultimate protection against power spikes or lightning to all equipment connected to the board. This fantastic surge protector also comes with a \$10,000.00 connected equipment warranty. Put simply if the surge board fails to protect your equipment we will pay up to \$10,000.00 for the equipment connected to the surge board. That's real peace of mind for your valuable equipment.

Also available is the SurgeMaster with Telephone line protection. It offers the same ultimate protection to all equipment connected to the board as well as Telephone line protection.



SurgeMaster with Telephone Line Protection shown.

Surge Protector

\$45.00

Websearch Code ...BEL175

Surge Protector Telephone

\$55.00

Websearch Code ...BEL176

Belkin FireWire PCI Card

Finally, a high-speed serial bus that bridges the world of consumer electronics and computers. Capture your world in digital video! The IEEE 1394 PCI Host Adaptor transforms the desktop PC into a DV-editing bay. With data transfer speeds up to 400Mbps, this IEEE 1394 (aka FireWire or i.LINK) innovation delivers lightning-quick video input and output.

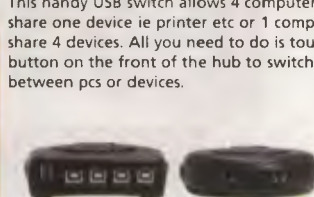


\$129.00

Websearch Code ...BEL139

Belkin USB 4 port switch

This handy USB switch allows 4 computers to share one device ie printer etc or 1 computer to share 4 devices. All you need to do is touch the button on the front of the hub to switch between pcs or devices.



\$95.00

Websearch Code ...BEL181

Quantum Snap Server

Engineered for One Purpose

Hard to believe? Not when you understand that the Snap Server has been engineered for one purpose only: network file sharing. Any other function or service irrelevant to this purpose has been eliminated. For example, the Snap Server is not an application server and it doesn't perform network directory services. But if you already have an NT or NetWare server, a Snap Server is truly your best alternative for supplying additional network storage.

Installs In Five Minutes

Snap Servers come in 20GB, 40GB, 80GB, 160GB 240GB and 400GB models, all of which deliver revolutionary benefits: you plug in the power, plug in the RJ-45 Ethernet connector and turn on the Snap Server. The 10/100 Ethernet connection detects the appropriate network bandwidth, and the Snap Server automatically responds and connects to all client protocols. There's no need for additional configuration of other servers or clients on your network.

Multi-platform File Sharing

The Snap Server is the only server that delivers full multi-platform file sharing from the moment you turn it on in mixed environments containing Windows NT, NetWare, UNIX, Linux and Macintosh. It also provides network security integration with NT domain and NetWare bindery.

SnapServer 1000 (1HDD)

20GB
\$1035.00

Websearch Code ...QUA225

RentSmart \$11.35 pw

SnapServer 1000 (1HDD)

40GB
\$1385.00

Websearch Code ...QUA220

RentSmart \$15.18 pw

SnapServer 1000 (1HDD)

80GB
\$2099.00

Websearch Code ...QUA222

RentSmart \$23.01 pw

SnapServer 2200 (2HDD)

160GB
\$3699.00

Websearch Code ...QUA225

RentSmart \$36.28 pw

SnapServer 4100 (4HDD)

Mounts in a standard 19" rack or on a desktop. RAID 5 is enabled on four drives, and the drives can be reconfigured to RAID 0, 1, or JBOD.

240GB
\$7599.00

Websearch Code ...QUA224

RentSmart \$65.94 pw

400GB
\$11525.00

Websearch Code ...QUA223

RentSmart \$94.42 pw

Throughput Performance

Snap Servers provide throughput performance comparable with traditional file servers, even under high loads. And because the Snap Server is a closed system tuned for a single purpose, it's extremely reliable.

Lower Purchase Cost

Snap Servers offer radically lower purchase cost and total cost of ownership compared to traditional file servers capable of performing the same functions. Snap Servers also have no additional administrative overhead. And unlike NT or NetWare servers, Snap Servers come with an unlimited user license.

Applications

Customers have found unique and creative uses for the Snap Server and its ability to add gigabytes of network storage in minutes. They are being used for Remote office server, Software distribution, Workgroup file sharing, Graphics library, Drive image server, Portable server, Workstation backup, Scratch server and First server for peer-to-peer networks.



Quantum



Click here to buy . . .

www.iswh.com.au

Verified
Secure
Site



Maxtor

1394 External Storage

The easy way to add storage

The fast, easy way to add storage to your PC or Mac. With data transfer rates up to 30 times faster than USB and the highest capacity available, the 1394 External Storage solution is perfect for today's storage-hungry digital entertainment equipment. Just plug it in and go – it's ready to use right out of the box for PC users, and Mac users are just three simple clicks away. Compatible with 1394, i.LINK and FireWire and powered by Maxtor's award-winning hard drive, it offers dependable storage/back-up for all your important documents and precious memories. Each easy to install 80 GB unit stores up to 20,000 MP3 tunes, 80 hours of compressed video or 8,000 digital pictures (10Mb / 3.3 Mpixels). Stack more than one of these ultra-sleek units for virtually unlimited storage.

Run applications, edit videos, listen to music, download files, or play games. Powered by Maxtor's award-winning hard drive, Maxtor's External Storage offers dependable storage/backup and work space for all your important documents and precious memories. Every Maxtor External Storage device is backed by unparalleled support, including our renowned No Quibble Service.



Add 80gb extra
storage space!

**80 GB
or 40 GB**

Designed for fast,
easy storage upgrades

PC and Mac
Compatible

FEATURES:

Easy installation
1394, i.LINK and
FireWire compatible

Stackable
ultra-sleek design

400 Mb/sec data
transfer rate

Powered by Maxtor's
award-winning
hard drive

No Quibble Service
and support

80GB
\$895.00
Websearch Code ...MAX001

40GB
\$635.00
Websearch Code ...MAX002

PartitionMagic 7.0

PartitionMagic allows you to create, resize, merge and convert partitions on your hard drive without destroying data. Award-winning PartitionMagic is the world's leading hard-drive partitioning software for PC enthusiasts.

Features:

- Merge NTFS partitions
- Undelete a deleted partition from rescue disks
- Support for Windows XP
- Partition hard drives as large as 80 GB
- Access and partition external USB drives

Other Powerful Features:

- Organize and protect the information on your hard drive
- Easy, step-by-step wizards help you perform partitioning tasks
- Preview the effects of partitioning before implementing anything
- Safely manage multiple operating systems
- Convert from one file system or partition type to another without losing data
- Supports FAT, FAT32, NTFS, and Linux ext2/Swap file systems



Upgrade
\$95.00
Websearch Code ...POW071

Full Product
\$135.00
Websearch Code ...POW070

Drive Image 5.0

The important data on your computer is irreplaceable. But these days you're not really sure how safe it is. Be certain with PowerQuest's Drive Image 5.0 - the easy answer for protecting all the valuable data on your hard drive, including disaster recovery and backup for system upgrades.

- QuickImage Windows interface which lets you schedule regular, automatic backups of your entire hard drive or individual partitions.
- PowerQuest DataKeeper for constant monitoring and automatic file backup.
- SmartSector technology to reduce the time it takes to create and restore data.



Upgrade
\$95.00
Websearch Code ...POW056

Full Product
\$135.00
Websearch Code ...POW055

DeployCenter 5.0

PowerQuest DeployCenter 5 (formerly Drive Image Pro) offers simplified system deployment and upgrades. Deploying or upgrading computer systems can be extremely time consuming and costly. DeployCenter lets you take care of these critical issues to help ensure your organisations success?.

- Remotely manage multiple clients
- Deploy or upgrade Windows workstations
- Create a standard, customized work environment for faster deployment of new computers
- Easily introduce new systems to the network
- Automatically distribute and install new software or upgrades



Upgrade 10 User
\$185.00
Websearch Code ...POW073

10 User
\$399.00
Websearch Code ...POW072

STORAGE & UTILITIES

Lost & Found

Automatically recover and restore data after accidental (or even intentional) data loss, or from corrupted media. Unlike other data repair and recovery software solutions, it doesn't need to be installed prior to the recovery of lost or corrupted files. Recovers your files even after reformatting, as long as you have not written over them.



\$119.00
Websearch Code ...POW041

DataKeeper

Now you'll never have to worry about being without a backup again. DataKeeper continuously monitors file activity in the background and makes compressed backups on the fly, keeping you protected. Featuring password protection and encryption, fault-tolerant backup sets, complete registry protection, continuous backup and monitoring.



\$75.00
Websearch Code ...POW035

DriveCopy 4.0

DriveCopy is the safest, easiest, and most affordable way to copy your old hard drive to your new hard drive without losing a single preference, setting, or byte of data. Connect both hard drives to your computer, and with a few simple steps, everything from your old hard drive is automatically copied to your new one.



\$99.00
Websearch Code ...POW046

COMPUTER PRODUCTS AT ROCK BOTTOM PRICES!!!



INTERNATIONAL SOFTWARE WAREHOUSE

EVERYTHING FOR YOUR PC - DELIVERED AUSTRALIA WIDE



HOME & LANDSCAPE BUSINESS

Travelscan

The ideal companion for your notebook. The TravelScan is a lightweight super compact scanner offering black & white and colour scanning. Photos & documents can be fed through the TravelScan and sent to most popular applications.

- No power adaptor required
- Scan business cards, cheques, photos and paper up to A4 or Legal size.
- True 24 bit colour (1 pass)
- Very neat software, combines OCR, Presto PageManager, input into MS-Word, export to your fax or email software.
- Win only



PCMCIA
\$260.00
Websearch Code: ...PRO538

USB
\$260.00
Websearch Code: ...PRO537

OmniPage Pro V11

The new OCR Engine - combines OmniPage Pro, WordScan Plus and Recognita Plus. The result? Less editing, less proofing and less work. It also incorporates additional dictionaries that increase accuracy recognition, reducing the number of errors by 30%, on average.

- OmniPage Web Personal Edition included
- Simplified User Interface
- New Caere Scan Troubleshooter
- Windows® 2000 Certified



Upgrade
\$335.00
Websearch Code: OMN120

Full Version
\$1150.00
Websearch Code: OMN113

Custom Home 3D Design

Whether you want to remodel your home, build a new home, or just replace tired decor with a fresh new look, Custom Home 3D Design 4.0 can make it easier.



\$85.00
Websearch Code: ...AU5547

Complete 3D Land Designer

Easily create the ultimate landscape, garden and deck! Powerful software tools supported by helpful videos make landscaping easy and fun while drafting expert landscape designs.



\$85.00
Websearch Code: ...AU5546

Sierra Home Architect 4.0

Offering the most realistic way to design, visualise, and experiment with your home improvement projects. See both the interior and exterior of your new home design, remodelling, or decorating project come to life.



\$55.00
Websearch Code: ...AU5544

Ultimate Deck and Landscape

The perfect tool for designing the ultimate backyard retreat. Software products, a single integrated interface gives you all the tools and palettes you need to spend productive time designing your project. Dazzling 3D photo-realism shows your design just like a photograph.



\$85.00
Websearch Code: ...AU5540

Custom 3D Land Designer

Easy to use software shows you inspirational gardens and plants, lets you visualise and create your own dream landscape, and goes one step further by helping you sustain and preserve your gardens and plants for years to come.



\$65.00
Websearch Code: ...AU5545

Super Home Suite

View your ideas in ways no other software can. Seven powerful programs in one PLUS Ultimate Deck that all launch from the same easy-to-use interface, including our unique RealModel software that lets you build a 3D scale model of your home design!

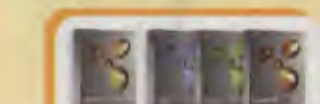


\$165.00
Websearch Code: ...AU5551

Microsoft Office V.x for Mac

All four Office applications, Word X, Excel X, PowerPoint X and Entourage X, have been improved, inside and out. On the inside, Quartz. On the outside, Aqua. Just like Mac OS X.

NEW



Upgrade
\$595.00
Websearch Code: ...M55710

Full Version
\$949.00
Websearch Code: ...M55709

Microsoft Word X for Mac

Microsoft Word X for Mac is a word processing and publishing program for creating home, business, and school documents. Word X, offers a number of advanced features that make it even easier to create professional documents, letters, Web pages, and other printed or online material.

A powerful word processing program designed specifically for Mac OS X. Simple, fast, and flexible, Word X continues to set the standard. Now it's easier than ever to make a statement: Whether you're writing a letter or crafting a Web page, Word X has everything you want.

Full Version
\$765.00
Websearch Code: ...131008

Upgrade
\$315.00
Websearch Code: ...131009



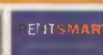
Microsoft Excel X for Mac

Microsoft Excel X for Mac is a powerful spreadsheet program for evaluation, calculating, and analyzing data, as well as creating charts and reports.

A powerful and flexible spreadsheet program designed specifically for Mac OS X. With Excel X, it's easier than ever to analyze, report, and share your data. Whether you're a business bean counter or a busy home budgeter, Excel has the tools you want to get the answers you need.

Full Version
\$765.00
Websearch Code: ...131005

Upgrade
\$315.00
Websearch Code: ...131006





Zip™ 250MB USB Host Powered

NEW - Zip™ 250MB USB host-powered drive

Now it's even easier to take your information with you. The Zip™ 250 USB drive is now available with a USB cable that provides both data and power, so you don't need any external power source. Powered by a USB cable, its easy to connect (just plug it in) and easy to launch (no rebooting). This new drive is compatible with most major operating systems and all Zip™ 100MB and 250MB Zip™ disks.



iomega

\$385.00

Websearch Code: IOM1061

Zip 100MB Fast Start

With the simplicity and reliability of a Zip™ 100MB Parallel drive and a Zip™ 100MB disk included, there's no faster way to get started with Iomega!

Create, edit, share and back up your work or personal information with Zip. It is easy to use and operates just like a floppy. It allows you to effectively manage your work and large files like presentation material, graphics, architectural drawings, digital photos and music. It makes unlimited storage incredibly affordable.



iomega

\$255.00

Websearch Code: IOM162

Predator CD-RW Drive

You'll be armed and dangerous with the new Predator CD-RW external drive from Iomega. It gives you cutting edge digital audio and imaging capabilities, as well as great data backup. This stylish, portable device is simple to install and use. And it's simply the best looking external CD-RW on the market, period.

Predator comes with a complete suite of FREE software including MusicMatch and Iomega Quik Sync 2, that allows you extreme music fans to create and convert MP3s and rip CD's quickly and easily at drive speeds of 8X/4X/32X*. Let your Predator loose!



RentSmart \$6.13 pw

iomega

\$559.00

Websearch Code: IOM148

Zip™ 100MB USB Host Powered

NEW - Slimline USB host-powered drive

The Universal Serial Bus (USB) technology is the emerging standard for connecting anything to your computer. This state-of-the-art interface makes good on the long-touted promise of simple plug-and-play capability, moving beyond traditional limitations and annoyances of the SCSI or parallel port interfaces. Now, USB-equipped Macintosh and PCs running Microsoft Windows 98 can begin utilizing USB advantages.

- Back up your hard drive
- Take your stuff with you
- Use it like a hard drive
- Great for multimedia
- Plug-and-play USB connection



iomega

\$195.00

Websearch Code: IOM151

PocketZip™ PC Card Drive

The PocketZip PC Card Drive fits into the PC card slot of most notebook computers. It comes ready to run and with no extra cables or batteries, is easy to install and use. PocketZip disks hold an amazing 40MB of information and provide the ideal low-cost, high-capacity removable storage solution for storing data on the run. Docking Station required for Mac users.



PocketZip Docking Station

\$109.00

Websearch Code: IOM132

PocketZip

\$120.00

Websearch Code: IOM120

Iomega® CD-RW 24x10x40 Internal

Now available in 24x10x40, Iomega ZipCD Internal drive is the ideal way to store, share and archive information in a common 650MB format. Adding a ZipCD to your PC gives an added 650MB of removable capacity, so you can save and share Internet downloads, games, music, photos and much more.

The ZipCD reads, writes and rewrites to a range of CD formats and with the proven reliability of the Zip brand.



24x10x40

\$415.00

Websearch Code: IOM165

Peerless™

The next generation in high-capacity removable storage. Iomega's Peerless™ drive system offers 10GB and 20GB disks, interchangeable interfaces, and 15MB/sec transfer rates for stunning performance. Slim, modular design provides reliability, speed and portability. Firewire® and USB 1.1 interfaces available. It's powerful enough to store all your files, fast enough to run applications straight from the drive, and versatile enough to go anywhere with you.



RentSmart \$11.56 pw

\$1055.00

Websearch Code: IOM155

RentSmart \$11.56 pw

\$1055.00

Websearch Code: IOM157

Microdrive™

Iomega's Microdrive 340MB and 1GB miniature removable drives provide high-performance storage for digicams, laptops, and PDAs. Enjoy the freedom of expanded storage capacity for a fraction of the price of flash memory cards. Perfect for capturing hundreds of photos, presentations, PDFs, spreadsheets, music and video. CF+ type II format. Includes \$130 Iomega coupon booklet.

- Fits virtually all CompactFlash™-ready digital devices.
- Get more megabytes of storage at a fraction of the cost.
- Fast data transfer speeds.
- Easy plug and play sharing between devices.
- PC card adapter is included.



RentSmart \$6.25 pw

\$570.00

Websearch Code: IOM153

RentSmart \$12.22 pw

\$1115.00

Websearch Code: IOM152

HipZip™

Iomega™s premier digital audio player

- Built-in lithium ion battery, which produces 12 hours of continuous play off one charge
- Universal music file format allows for support of both free and copyright-protected content.
- Supports MP3 and the new Microsoft Windows Media audio formats
- High quality equalizer control system
- Drag and drop file transfer
- Fast USB connectivity
- Acts as external PocketZip drive
- Carrying case, headphones, USB cable,
- Two PocketZip 40 MB disks
- MusicMatch Jukebox CD Software



\$269.00

Websearch Code: IOM144

STORAGE

Iomega® CD-RW USB 16x10x40 USB 2.0.

The Iomega External 16x10x40 CD-RW drive boasts higher speeds due to higher throughput of USB 2.0. This drive is also compatible with USB 1.1, which limits the drive speeds to 4x4x6. It includes all the hardware and industry-leading software you need to burn fast. Product also includes USB data cable, audio cable, external power supply, one CD-R disc, and quick install manual.



\$449.00

Websearch Code: IOM124

Iomega® Peerless Drive Disks for PC or Mac



IOM158 PEERLESS 10GB DISK PC \$385.00

IOM159 PEERLESS 20GB DISK PC \$485.00

IOM160 PEERLESS 10GB DISK MAC \$385.00

IOM161 PEERLESS 20GB DISK MAC \$475.00

Accessories

| Media | |
|--------|--|
| IOM007 | 250MB SINGLE ZIP DISK MAC \$29.00 |
| IOM107 | PocketZip 10 PACK DISKS \$230.00 |
| IOM106 | PocketZip 2 PACK DISKS \$50.00 |
| 127208 | JAZ 1GB DISK SINGLE PC \$215.00 |
| IOM119 | JAZ 1GB SINGLE MAC DISK \$199.00 |
| IOM089 | JAZ 2GB DISK 3 PACK PC \$670.00 |
| IOM006 | JAZ 2GB DISK SINGLE MAC \$185.00 |
| IOM097 | JAZ 2GB DISK SINGLE PC \$235.00 |
| IOM086 | ZIP DISK 100MB MAC SINGLE \$27.00 |
| IOM030 | ZIP DISK 100MB PC 10 PACK \$199.00 |
| IOM085 | ZIP DISK 100MB PC SINGLE \$27.00 |
| IOM008 | ZIP DISK 250MB 10 PACK MAC \$255.00 |
| IOM102 | ZIP DISK 250MB 10 PACK FOR PC \$279.00 |
| IOM103 | ZIP DISK 250MB SINGLE \$29.00 |
| IOM074 | ZIP DISKS 10 PACK MAC 100MB \$199.00 |



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MONITORS

Microsoft Age of Empires Collectors Edition



\$109.00

Websearch Code: MS3624

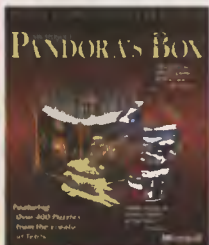
Microsoft Entertainment Pack



\$39.00

Websearch Code: MS3505

Microsoft Pandora's Box



\$39.00

Websearch Code: MS5264

Opening Hours

Sales lines open:
8.30am until 5.30pm (EST)
Monday to Friday
(except Wednesday 9.00am until 5.30pm)

Pricing

All orders are invoiced
inclusive of GST. Prices
are subject to change &
product availability.*

* See our Terms & Conditions on page 2.

Sony CPDE100 15" Monitor

Ideal for the home and small office requiring exceptional image performance without sacrificing value or reliability. It's perfect for everything from spreadsheets and finely detailed graphic presentations to browsing the internet and gaming.

- 15" FD Trinitron CRT
- 1280 x 1024 resolution @ 60 Hz
- Digital Multiscan Technology
- 0.24mm Aperture grille pitch (min)
- 3 yr Warranty
- Win/Mac



\$490.00

Websearch Code: SONY62

Sony CPDE220 17" Monitor

The CPDE220 is ideal for the demanding home or office professional who requires exceptional image performance, without sacrificing value or reliability.

- 17" Flat Trinitron CRT
- 1920 x 1200 resolution @ 60Hz
- Compact, low-rise cabinet
- Digital Multiscan Technology
- 0.24mm Aperture grille pitch (min)
- 3 yr Warranty
- Win/Mac



\$715.00

Websearch Code: SONY63

Sony CPDG420 19" Monitor

Designed with the professional user in mind, this 19" FD Trinitron offers a visually flat screen and outstanding image performance. Incorporating a style and cabinet colour that will brighten any desktop. CPDG420 will become the standard by which other monitors are judged.

- 19" FD Trinitron Picture Tube
- Compact, low-rise two-tone cabinet
- 1920 x 1440 resolution @ 60Hz
- 3 yr Warranty
- Win/Mac



\$1320.00

Websearch Code: SONY64

Sony 15.1" LCD Flat Panel Display - SDMM51

15.1" viewable XGA LCD flat panel display, weighs 4.6kg and 180mm deep. Presents bright and sharp images at resolutions up to 1024 x 768 @ 75Hz. Incorporates our Digital Multiscan Technology with a Horizontal scan range of 28-64kHz. Zero Footprint Design, Digital FlexRes Technology, Auto ImageSet, 16 million colours, Easy-to-Use OSD Controls, and is International Energy Star Compliant, MPR II, TCO 99.

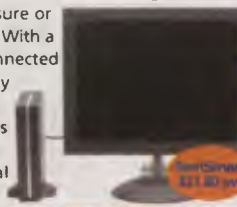


\$1295.00

Websearch Code: SONY95

Sony 15" LCD Flat Panel Display - SDMN50

Combine Sony LCD technology with state of the art design. Finished in Matte Black and Polished Metal, this modern design is suited for high exposure or corporate use. With a media box connected to the panel by a single cable, this display has a minimal footprint, ideal in small places. Built in speakers complete the package.



\$1989.00

Websearch Code: SONY66

Sony 18.1" LCD Flat Panel Display - SDMM81

The SDMM81 offers bright and sharp images in a wide 18.1" LCD flat panel display, but with a small footprint to fit on any desk. Light grey/blue grey in colour with built in stereo speakers and headphone jack, this represents a new level in LCD monitors.



\$3975.00

Websearch Code: SONY92

ViewSonic E70

The 17" ViewSonic E70 is the right choice for SOHO (small office/home office) users and students who are ready to upgrade their smaller monitor... at an affordable price. With its 0.24mm horizontal dot pitch, crisp images and brilliant colours this monitor is ideal for a wide range of applications from word processing, spreadsheets and light graphics to surfing the Internet. It even offers OnView™ controls, which allow the user to make screen adjustments via an on-screen menu.



\$399.00

Websearch Code: VIE002

ViewSonic E53

Quality that is truly affordable... the ViewSonic E53 colour monitor is exceptional value with features you would only expect from more expensive models. This 15" display is packed with advanced features such as OnView™ controls for easy screen adjustments and ViewMatch™ colours for screen-to-print colour matching. Its anti-static, anti-glare screen treatment helps reduce glare.



\$389.00

Websearch Code: VIE005

ViewSonic VE150

In offices where space conservation is a concern but strikingly rich colour is essential, the new ViewSonic VE150 flat panel monitor is an outstanding solution. The 15" TFT active matrix display gives users the same approximate viewing area as a 17" CRT monitor while occupying only 25% of the desk area. This state-of-the-art LCD supports 16.7 million colours at resolutions up to 1024 x 768, with low power demands that produce virtually no emissions.



\$1199.00

Websearch Code: VIE004

LG SW775N 17" Monitor

- 17" (15.9" Viewable) FST
- 0.27mm Dot pitch
- Dynamic focus
- Anti-reflective, Anti-Static, Anti-Glare face treatment
- Maximum resolution 1280x1204
- Digital Microprocessor OSD Control
- EPA Energy Star Compliant
- NUTEK compliant
- Warranty: 3 years



\$365.00

Websearch Code: LGE005

LG SW77M 17" Multimedia Studio Works Monitor

- 17" (13.8" Viewable) FST
- 0.28mm Dot pitch
- Anti-Reflective, Anti-Static, Anti-Glare face treatment
- Digital Microprocessor OSD control
- Maximum res. 1280x1024
- Digital Microprocessor OSD control
- EPA Energy Star Compliant
- NUTEK compliant
- Warranty: 3 years



\$620.00

Websearch Code: LGE003

LG SW570LE 15" LCD Monitor

Features
Display Area: 307mm x 230mm
Backlight Unit: 2CCFL Lamps
Brightness: 200cd/5[Typical]
Contrast ratio: 200:1
Response time: 60ms(max)
Display Colours: 16.7 Million (24bit) Video
Max Resolution: 1024 x 768@85Hz



\$1650.00

Websearch Code: LGE004

Dragon NaturallySpeaking Mobile v5

Now you don't need your laptop to create reports and presentations when you're on the move! Simply speak naturally into the palm-sized digital recorder whether you're sitting in a waiting room, riding in a cab from the airport, or commuting on the train. When you're at your PC, plug the recorder in, and the software transcribes your recorded speech automatically. With the included award-winning Dragon NaturallySpeaking Preferred v.5 software, you can edit and format documents in virtually any Windows® application hands-free!


\$560.00

Websearch Code : DRG001

Dragon NaturallySpeaking Preferred v5

With Dragon NaturallySpeaking Preferred v.5 you can create, edit, and revise documents and email - even surf the Web-entirely by voice. Just speak, and your words appear in business letters, reports, e-mails and virtually all Windows®-based applications. Dragon NaturallySpeaking Preferred makes it easy to edit and format text-even change fonts, colours, and sizes-by voice! Insert phrases and paragraphs with only a few words. Listen to text and email read aloud by replaying your recorded speech. You can even browse the Web-hands-free.


\$299.00

Websearch Code : DRG002

Dragon NaturallySpeaking Standard v5

Why type when Dragon NaturallySpeaking Standard v5 lets you communicate with your PC in the most natural way - by speaking. In less than 5 minutes you can start writing reports, letters, and emails in virtually any Windows application - all with your voice! Change fonts and sizes, select words, fix paragraphs, and rewrite sentences without ever touching the keyboard. Forget about spell checks — Dragon NaturallySpeaking spells correctly every time. It's the fast, easy, and fun way to turn speech into text!


\$190.00

Websearch Code : DRG003

UTILITIES



hp Photo Paper A4 20 Sheet Pack


\$19.95

Websearch Code : AUC106



hp Glossy Greeting Cards A4


\$19.95

Websearch Code : HPP035

VirusScan 6.0

Keep Hackers Out

McAfee VirusScan is the first anti-virus software that comes with an integrated personal firewall - an easy-to-use application that blocks hackers from gaining access to your system. McAfee VirusScan technology detects and removes all types of known viruses from any source including email attachments, Internet downloads, shared disks, CD Roms and even synchronization with your PDA.


Standard
\$75.00

Websearch Code : MCA080

McAfee

Firewall 3.0

Get The Defense That Hackers Hate

Simply put, your PC is vulnerable without a firewall. A firewall prevents hackers from stealing your private information, blocks Trojan horses from taking control of your PC, and denies access to any number of dangerous intruders. McAfee Firewall makes it easy to put a protective barrier around your PC.


\$50.00

Websearch Code : MCA164

McAfee Firewall

QuickClean 2.0

Protect Your Privacy

Even when you empty your recycle bin, information about where you've been online and files you've recently deleted can be retrieved from your hard drive. However, with McAfee Shredder technology included, you can shred this information from your computer and cover your online tracks.


\$69.00

Websearch Code : MCA081

McAfee

VirusScan Pro 6.0

Every day you get online, you are exposed to more viruses and smarter hackers. For reliable protection, choose McAfee VirusScan Professional, a superior anti-virus product with even more features for comprehensive PC protection. Now you have one solution to eliminate viruses, quickly clean up your PC, permanently erase private information and more.


Professional
\$92.00

Websearch Code : MCA077

McAfee

Internet Security 4.0

When you're online, your privacy is on the line. In today's highly wired environment, good anti-virus and firewall protection is essential for smart, safe computing. McAfee Internet Security is a comprehensive, easy-to-use, and automatic way to safeguard your PC, you, and your family from online threats. Install it for around-the-clock protection.


\$99.00

Websearch Code : MCA079

McAfee



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Belkin CD Launcher

Whether you're a skilled graphic designer or computer beginner, the CD LaunchPad lets you do the job in minutes. Write liner notes or anything you please while adding your custom designs or clip-art images provided on the software. You can also import backgrounds from the Web or other sources. Design your own CD labels and jewel case inserts with the Belkin CD LaunchPad. The CD LaunchPad frees your imagination to create impressive labels and CD inserts that reflect your personal style.

\$28.00
Websearch Code ... BEL170



LaBelle CD Labeller

Give your CDs the professional touch. This clever yet simple labeller lets you put neat and professional looking labels onto your CDs. Labels are available for both inkjet and laser printers. Through precise label centering, the Swiss made LaBelle ensures that the CD spins evenly and thus data readability is not corrupted.



CD Labels 20 Pack
LAB012 **\$15.00**
Gloss CD Labels 20 Pack
LAB008 **\$28.95**

CD Labelling Starter Kit
\$45.00
Websearch Code ... LAB005

PRINCO CD Media



- 74Min/650MB
- Silver-blue recording surface
- 16x recording certified

Pringo 74SB
\$1.05
Websearch Code ... PR100



- 80Min/700MB
- Silver-blue recording surface
- 16x recording certified

Pringo 80SB
\$1.05
Websearch Code ... PR100



- 74Min/650MB spindle
- 50 discs per spindle
- 16x recording certified

Pringo 74SP 50 Pack
\$42.00
Websearch Code ... PR100



- 80 min audio
- Multi-speed capable
- Ideal for audio & HiFi CDR's

Pringo 80MU
\$2.75
Websearch Code ... PR110



- 80Min/700MB
- Re write 1000+times
- 4x CD-RW compatible

Pringo 80RW
\$2.45
Websearch Code ... PR110



- 74Min/650MB spindle
- 6 x 100 discs per spindle
- 16x recording certified

Pringo 74SP 600 Pack
\$425.00
Websearch Code ... PR100

Verbatim CDR/CD-RW

Verbatim CD-R and CD-RW discs feature a proprietary Metal AZO dye (which offers the best protection against sunlight), multi-speed recording, scratch-resistant, protective coating, a fully printable surface and across the board writer compatibility.

| | | |
|--|--------|----------------|
| DataLife Plus 10 pack CD-R 74min 650mb 1x-16x | VER080 | \$15.80 |
| DataLife Plus 10 pack CD-R 80min 700mb 1x-16x | VER124 | \$16.50 |
| DataLife Plus 25 pack coloured CD-R 80min 700mb 1x-12x | VER123 | \$34.95 |
| DataLife Plus Single CD-R 74min 650mb 1x-16x | VER043 | \$1.65 |
| DataLife Plus Single CD-RW 74min 650mb 2x-4x..... | VER081 | \$3.95 |
| DataLife Plus CD-R High Speed 80min 700mb 4x-10x..... | VER125 | \$4.95 |



Sony 10CDQ74N1

16X 10pk CDR (650mb/ 74min)
Features: Sony CDR 16X-1X write compatible, Sony branded CDR in an individual jewel case, Wide Recording Power Margin, New organic dye and reflective layer, Super precise mastering and stamping

\$15.00
Websearch Code ...SONY18



Sony 10CDDQ74NP1

16X 10pk Cradle CDR-650MB/74MIN
10pk Sony 16X-1X Branded CDR. 650MB / 74min. Individual disk in a Plastic Storage Case. Special Promotional Pack - Win a Home Cinema Pack or 1 of 6 DCSPI-Digital Still Camera.

\$15.00
Websearch Code ...SONY08



Sony CDRW650DF 1-4X Preformatted CDRW Disk (650MB)

CD-RW is a CD format that uses phase-change-recording material to enable erasure and overwriting of previously recorded data. Preformatted CDRW media (Adaptec DirectCD) Sony CD-RW media complies with Orange Book Part III. It can be rewritten over 1000 times and is playable on Multi-Read CD-ROM drives.

\$5.95
Websearch Code ...SONY11



Sony 10CDQ80N1

16X 10pk CDR (700Mb/ 80min)
Features: Sony CDR 16X-1X write compatible, Sony branded CDR in an individual jewel case, Wide Recording Power Margin, New organic dye and reflective layer. Super precise mastering and stamping

\$16.95
Websearch Code ...SONY09



Sony 50CDQ74SP1

16X 50pk CDR (650MB/74min)
Features: Sony CDR 16X-1X write compatible, Sony branded CDR on spindle, Wide Recording Power Margin, New organic dye and reflective layer. Super precise mastering and stamping

\$85.00
Websearch Code ...SONY22



Sony CDRW650HS 4-10X High-Speed CDRW (650MB)

Record and rewrite up to 1000 times. With the ability to be rewritten this is suitable for graphic applications, multimedia and backup. Recording may also be difficult if the pickup lens is dirty or if laser power fluctuates due to ambient temperature or other factors.

\$4.99
Websearch Code ...SONY12



Mouseman Dual Optical

This advanced mouse employs two optical sensors 800 dpi each! For high-performance, maximum precision, and smoother scrolling. Perfect for use on hard-to-read surfaces such as wood. Comes with custom scroll wheel and patented WebWheel software.

\$85.00

Websearch Code...LOG293

Cordless Mouse Special Edition

Change your mouse color to fit your mood. Choose among four stunning hues: Vivid Blue, Midnight Dusk, Signal Red, or Amber Yellow. Get total cordless freedom. Digital radio technology ensures that your mouse works even when not pointed directly at your computer. Work for months on included batteries.

Three-year warranty.



\$89.00

Websearch Code...LOG292

IFeel Mouse

This mouse enhances your computing experience as you move around the web and your desktop. You can now feel your way around pull-down menus and dialogue boxes. As there are no moving parts to break down, you'll never have to stop to clean it. USB and PS/2 interface.

- Win/Mac



\$89.00

Websearch Code...LOG122

Cordless TrackMan Wheel

Experience true freedom. Place this comfortable optical trackball where you choose. Its digital radio technology works in a two-metre range without being pointed at the computer. For Windows 2000/98/95/NT 4.0 & Mac OS 8.5. Supports USB and PS/2 interfaces.



\$132.00

Websearch Code...LOG002

LOGITECH

QuickCam Pro 3000 USB

QuickCam Pro 3000 takes stunning pictures and videos with a true 640x480 (VGA) resolution. Use its built-in microphone to make live video calls to friends and family over the Internet and send exciting email with pictures and videos.



\$215.00

Websearch Code...LOG119

Wheel Mouse Optical

The Logitech Wheel Mouse Optical records motion through optical technology which allows it to glide across most surfaces. It is shaped to fit both left and right hands. Save time by using the buttons for shortcuts. Click the Scroll Wheel and the Logitech WebWheel feature puts browsing commands and web sites at your fingertips. USB and PS/2 interface.

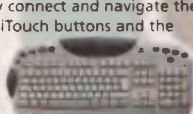


\$69.00

Websearch Code...LOG114

Internet Navigator Keyboard

Navigate the web in maximum comfort. The innovative design features Zero Degree Tilt - the lowest profile keyframe available - to make every keystroke easy. Multimedia controls for your favorite MP3s, DVDs and CDs. Seamlessly connect and navigate the web with iTouch buttons and the iNav scroll wheel. Five-year warranty.



\$75.00

Websearch Code...LOG294

Cordless Freedom Optical

The ultimate cordless keyboard and optical mouse provides less clutter, more style, and more freedom. A revolutionary cordless optical mouse that runs on almost any surface. Internet navigation and multimedia control at your fingertips. Ultra-flat, zero degree tilt design for increased comfort. True cordless reliability.



\$225.00

Websearch Code...LOG129

Cordless Freedom Pro

Without cords, place this keyboard and mouse wherever they are comfortable for you. The curved keyboard with split key layout enhances typing control. The contoured mouse provides maximum comfort and control. USB and 6-pin keyboard ports, USB and PS/2 mouse ports. For Windows 2000/98/95/NT 4.0.



\$210.00

Websearch Code...LOG106

QuickCam Express

QuickCam Express is an Internet video camera offering affordable and simple video and still image Internet communication.

- USB port connector for instant connectivity
- Larger Focus Ring for greater ease of use
- Custom camera base for precision camera positioning
- Up to 30 frames per second video frame rate - TV quality smooth motion video
- Cross platform video/still image E-Mail compatibility
- Software included



\$95.00

Websearch Code...LOG101

QuickCam Web

Featuring an integrated microphone and an excellent assortment of easy-to-use software the redesigned QuickCam Web has everything you need. Capture video, create web pages, make video calls over the Internet, video monitor, and more. Now anyone can add exciting pictures to their e-mail and send them to friends, with no special software or camera needed by the recipient. Broadcast LIVE video and audio over the Internet. The Logitech QuickCam Web is the perfect Internet Video Camera for everyone.



\$169.00

Websearch Code...LOG107

ClickSmart 510

Shoot it. Save captivating video or keepsake photos with megapixel impact to removable memory cards. Then download it all effortlessly with the new QuickSync system. Its lighted memory button tells you when you have new shots ready to transfer.

Share it. Easily send photos and video via e-mail. Post them on your web site. Or set up your own personal web album with Spotlife.com. Includes built-in flash plus software for editing video and photos. Show it. Make live video calls with the built-in microphone. You can even set up your own web cam.



\$335.00

Websearch Code...130996

SoundMan S-20

Two full-range satellite speakers with an expertly-tuned subwoofer deliver high-definition sound & solid bass for your favourite CD/MP3 songs. SoundTouch remote puts control to your fingertips, with volume dial, on/standby button, power indicator, and a convenient headphone jack.



\$125.00

Websearch Code...LOG112

SoundMan SR-30

Surround sound speaker system enhances your gaming experience with extreme realism. Discrete 4-channel speakers with powerful subwoofer bring rich sound to your favourite movies, games and music. Sleek design saves space and fits your lifestyle.



\$179.00

Websearch Code...LOG113

SoundMan Xtrusion™ DSR-100

100W high-performance speaker system delivers theater-quality surround sound for DVD movies and gaming realism. Patented Linear Magnetic Drive technology brings you high-fidelity sound reproduction. Xtrusion™ aluminum subwoofer provides deep, powerful bass. SoundTouch™ remote control. 2 year hardware warranty.

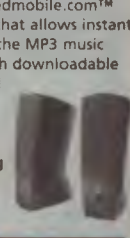


\$359.00

Websearch Code...LOG110

SoundMan S4 Speakers

An entry-level 2-piece speaker system for SOHO and multimedia users. Power/volume control, a LED power indicator, and a conveniently placed headphone jack. Bundled with Soundmobile.com™ CD-ROM that allows instant access to the MP3 music world with downloadable music and many Internet audio enhancing software.



\$52.00

Websearch Code...LOG111

INTERNATIONAL SOFTWARE WAREHOUSE

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Websearch Code
131013



Microsoft IntelliMouse Optical

We've replaced that old-fashioned mouse ball with an IntelliEye optical sensor that tracks movement 1,500 times per second providing smooth and precise motion. No mouse ball means no moving parts to clean or wear down.

\$96

Websearch Code
130669



Microsoft IntelliMouse Explorer

IntelliMouse Explorer throws out all the old, mechanical technology used in current mice. IntelliMouse Explorer uses a new optical sensor called IntelliEye. This sensor scans the surface beneath the mouse 1,500 times per second to accurately and crisply track the smallest motion.

\$149

Websearch Code
MEM010



Microsoft Wireless IntelliMouse Explorer

Wireless IntelliMouse Explorer is supercharged with Microsoft Corp.'s new proprietary IntelliEye optical technology and breakthrough power-saving technologies, offering unprecedented performance, accuracy and control.

Microsoft Internet Keyboard



One-Touch access to the Internet and more!

The Internet Keyboard has 10 Hot Keys on a comfortable standard keyboard design that also includes a detachable palm rest. The Hot Keys allow you to browse the web,

\$59

Websearch Code
MSS264

check e-mail directly from your keyboard. The IntelliType Pro software also allows you to customize your hot keys - make the Internet keyboard work the way you want it to!

Microsoft Internet Keyboard Pro



Quick access, complete control. The Internet Keyboard Pro brings 19 Hot Keys and 2 USB ports to a comfortable standard keyboard design that also includes a detachable palm rest. Hot Keys allow you to

\$85

Websearch Code
MSS579

browse the web, check e-mail, or play a CD directly from your keyboard. The USB ports on the Internet Keyboard Pro enable you to plug your latest USB devices directly into your keyboard.

Microsoft Natural Keyboard Pro



The Natural Keyboard Pro gives you one-touch access to the Internet, your e-mail, and your favorite multimedia controls. With its powerful IntelliType Pro software and built-in USB ports, the Natural

\$112

Websearch Code
MSS205

Keyboard Pro combines comfort and control to let you work more efficiently. The Natural Keyboard Pro works the way you want it to!

Microsoft Office Keyboard

NEW!



Now you can scroll, move between programs, cut, copy, paste, go back and forward - the things you do all the time - at the touch of a button. The

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Websearch Code
130946

unique, left-side Single Touch Pad offers you two-handed control and flexibility for a more efficient way to work. Built for comfort and to make optimum use of Microsoft Office products such as Excel, Word, Outlook, and popular browsers, this is the keyboard designed for the way you really work.

\$185

Websearch Code
MSJ020



Microsoft SideWinder Force Feedback 2

Delivers the subtle force effect of a real driving experience for players who demand the best.

\$95

Websearch Code
MSJ004



Microsoft SideWinder Freestyle Pro

Move left, right, down, up, and the Freestyle Pro immediately translates body language into game movements for fast paced action.

\$95

Websearch Code
MSJ008



Microsoft SideWinder Strategic Commander

Brings your strategy game play to a new level by allowing you to move, deploy and command your forces faster and more efficiently

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Websearch Code
MSJ001



Microsoft SideWinder Game Pad USB

Take control of your game! Microsoft's definitive game pad sets the standard for enhanced game play.

\$56

Websearch Code
MSJ006



Microsoft SideWinder Joystick

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For advertising details contact Matthew Scotton on (02) 9288 9158



Brand Names • On-Site Warranty

USCT INTEL SERIES

Home/Office

- Intel 845 Chipset Motherboard
- **Hyundai 512 MB 133 MHz RAM**
- Sony CD Re-Writer (40x16x10)
- **Sony 16x DVD ROM**
- Sony 1.44 MB Floppy
- Seagate 40.1 GB HDD
- Auriga 17" Digital Monitor
- 64 MB GeForce2 MX Video Card
- Motorola 56K V90 Fax/Voice
- 4 Channel 3D Audio
- 480 W Speakers
- Keyboard and Mouse
- 300 W Power Supply Case
- 2 yrs Parts & 5 yrs Labour Warranty* (1st year On-Site Warranty*)

PENTIUM 4 1.6 GHz \$1995

PENTIUM 4 1.7 GHz \$2095

Upgrades:

- 40.1 GB 7200 rpm HDD \$ 65 extra
- 19" Digital Monitor \$195 extra
- Creative 3-piece Speakers \$ 75 extra
- M/S Worksuite 2001 \$135 extra

Business/Professional

- Intel 850 Chipset Motherboard
- **256 MB (PC800) RD RAM**
- Sony CD Re-Writer (40x16x10)
- Sony 1.44 MB Floppy
- Seagate 40.1 GB ATA 100 HDD
- **MAG 15" LCD Flat Monitor**
- 64 MB GeForce2 MX Video Card
- Motorola 56K V90 Fax/Voice
- 4 Channel 3D Audio
- In-built Speakers
- Keyboard and Mouse
- 300 W Power Supply Case
- Free Network Card
- 2 yrs Parts & 5 yrs Labour Warranty* (1st year On-Site Warranty*)

PENTIUM 4 1.6 GHz \$2495

PENTIUM 4 1.7 GHz \$2595

Upgrades:

- 256 MB RD (PC800) RAM \$195 extra
- Sony 16x DVD \$145 extra
- 19" Flat Diamondtron Tube \$ 0.00
- M/S Internet K/B & Mouse \$ 65 extra

Executive

- Intel 850 Chipset Motherboard
- **512 MB (PC800) RD RAM**
- Sony CD RW (40x16x10)
- Sony 16x DVD ROM
- Sony 1.44 MB Floppy
- Auriga 19" Monitor, 22 dpi
- 64 MB GeForce2 MX Video Card
- Seagate 40.1 GB 7200 rpm HDD
- **Creative 5.1 DE Soundblaster**
- **Cambridge 3-piece Speakers**
- Motorola 56K V90 Fax/Voice
- Keyboard and Mouse
- 300 W Power Supply Case
- 2 yrs Parts & 5 yrs Labour Warranty* (1st year On-Site Warranty*)

PENTIUM 4 1.8 GHz \$2895

PENTIUM 4 2 GHz \$3295

Upgrades:

- 60.1 GB 7200 rpm HDD \$ 95 extra
- Cordless K/B & Mouse \$ 95 extra
- Creative Audigy Platinum \$345 extra
- 64 MB GeForce3 Titanic \$345 extra

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Options with systems only

Printers

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|----------------------------|-------|
| CANON BJC 2100 | \$140 |
| CANON BJC 5400 | \$220 |
| EPSON STYLUS C60 | \$250 |
| EPSON STYLUS C80 | \$620 |
| HP DESKJET 930C | \$255 |
| HP DESKJET 990C | \$710 |
| XE ROX Laser Printer PBEX | \$445 |
| XE ROX Laser Printer P1210 | \$745 |

Scanners

| | |
|----------------|-------|
| CANON 670U | \$125 |
| CANON 1240U | \$205 |
| CANON 1230U | \$305 |
| EPSON 1250 USB | \$225 |

Software

| | |
|-------------------------------|-------|
| WINDOWS 98 / ME / XP (OEM) | \$195 |
| WINDOWS XP Pro (OEM) | \$325 |
| BRITANNICA STANDARD (OEM) | \$ 35 |
| MS WORKSUITE 2001 | \$135 |
| MS SBE XP | |
| (Word, Excel, Publisher) | \$395 |
| MS OFFICE Pro (OEM) | \$520 |
| NORTON Anti-Virus 2002 | \$ 85 |
| NORTON Personal Firewall 2002 | \$ 75 |
| NORTON System Works 2002 | \$125 |
| Norton PC Anywhere | \$225 |

Accessories

| | |
|-----------------------------------|-------|
| Logitech Cordless Freedom Optical | \$195 |
| Logitech Quick Cam Pro 3000 | \$195 |
| PINNACLE Studio PC TV | \$225 |
| PINNACLE Studio On-Line | \$185 |
| PINNACLE Studio Action | \$190 |
| PINNACLE Studio DV Plus | \$480 |

USCT AMD SERIES

Gamer

- Asus A7V-266E DDR
- **Hyundai 256 DDR RAM**
- **64 MB GeForce3 Titanium TI 200**
- Sony CD RW (40x16x10)
- Sony 16x DVD-ROM
- Sony 1.44 MB Floppy
- Seagate 40.1 GB 7200 rpm HDD
- Auriga 17" Digital Monitor
- **Creative 5.1 DE Dolby Sound Card**
- **Cambridge 3-piece Speakers**
- Motorola 56K Fax/Voice
- 300 Watt Power Supply Case
- 2 yrs Parts & 5 yrs Labour Warranty* (1st year On-Site Warranty*)

AMD ATHLON XP 1600+ \$2495

AMD ATHLON XP 1700+ \$2595

Upgrades:

- 17" Flat Sony Tube \$195 extra
- 256 MB DDR RAM \$ 95 extra
- Cordless K/B and Mouse \$ 95 extra
- Cambridge 5-piece Spkrs \$ 95 extra

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- ☒ 1st year Nationwide On-Site Warranty*
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- ☒ Over 10,000 satisfied Home & Business users
- ☒ Lifetime Telephone Support*
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- Asus A7V-266E DDR
- **Hyundai 512 DDR RAM**
- **64 MB GeForce3 Titanium TI 500**
- Sony 17" Trinitron Tube Monitor
- Sony CD RW (40x20x10)
- Sony 16x DVD-ROM
- Sony 1.44 MB Floppy
- Seagate 60.1 GB 7200 rpm HDD
- **Creative Audigy Digital Entertainment**
- **Creative FPS1000 5-piece Speakers**
- Cordless Keyboard and Mouse
- Motorola 56K Fax/Voice
- 300 Watt Power Supply Case
- 2 yrs Parts & 5 yrs Labour Warranty* (1st year On-Site Warranty*)

AMD ATHLON XP 1800+ \$3695

AMD ATHLON XP 1900+ \$3795

Upgrades:

- 80.1 GB 7200 rpm HDD \$ 95 extra
- 19" Diamondtron Flat Monitor \$245 extra
- DTT 2200 Speakers \$145 extra
- Creative Audigy Platinum \$245 extra

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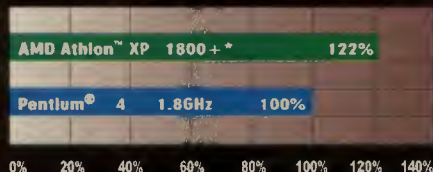
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AMD Athlon™ XP Processor Performance Benchmarks
eTesting Labs Inc. Business Winstone™ 2001, v1.0



AMD Athlon™ MP Processor Performance Benchmarks
Ziff Davis Inc. ServerBench® v4.1



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 AC97 SOUND CARD
 1000W SUBWOOFER
 17" LG 773N monitor
 300W ATX Case
 Athlon XP also available

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 1.44M FDD, 52X CDROM,
 32M TNT2 VGA, P4 MB,
 ATX CASE, SOUND CARD,
 SPEAKER, KEY/MOUSE,
 15" MONITOR, 56K MODEM,
 1.4G-2.0G available

ValueBox

CELERON 850 \$660

CELERON 900 \$685

CELERON 1.G \$710

DURON 800 \$660

DURON 900 \$695

DURON 1.0G \$720

ATHLON 1.2G \$900

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 20G HD, 40X CDROM
 3D TNT2/Sis730 VGA
 3D SOUND
 56K MODEM
 ATXCASE

P4SD3

Pentium4 1.6 \$1850

Pentium4 1.7 \$1920

Pentium4 1.8 \$2070

Pentium4 2.0 \$2740

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 12X SONY CDRW,
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 Cordless KEY/MOUSE
 AC97 SOUND CARD
 Altec Lansing 200 Speaker
 64M Geforce2 mx200 VGA
 ATX CASE

ASP63

XP 1500 \$1230

XP 1600 \$1250

XP 1700 \$1325

XP 1800 \$1465

256M SDRAM,
 30G HD, 1.44M FDD,
 56K MODEM,
 32M Geforce 2 mx200 VGA
 16XDVD, SOUND CARD,
 480W SPEAKER
 KEYBOARD/MOUSE,
 ATX CASE,
 15" CRT MONITOR

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 AMD XP 1600 CPU \$290, 40X20X10 ACER WRITER \$205
 VUEGO 3300USB OPTICAL 600X1200DPI SCANNER \$99
 FREE WHEEL MOUSE WITH VM-MULTIMEDIA KEYBOARD.

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CPU

| | |
|------------------|---------|
| AMD DURON 850 | \$125 |
| AMD DURON 900 | \$140 |
| AMD DURON 1.0G | \$155 |
| AMB DURON 1.2G | \$ |
| AMD T-BIRD 1.33 | \$265 |
| AMD XP 1.5G | \$280 |
| AMD XP 1.6G | \$290* |
| AMD XP 1.7G | \$364 |
| AMD XP 1.8G | \$505 |
| cooling FAN from | \$20 |
| Celeron 850 | \$140 |
| Celeron 900 | \$163 |
| Celeron 950 | \$177 |
| Celeron 1.0G | \$189 |
| P4 1.6GHz | \$ |
| P4 1.7GHz | \$430* |
| P4 1.8GHz | \$596 |
| P4 1.9GHz | \$899 |
| P4 2.0GHz | \$1,388 |

Case & Power

| | |
|------------------|------|
| ATX CASE From | \$55 |
| AT Power Supply | \$30 |
| ATX Power Supply | \$35 |
| ATX Power 300W | \$55 |

CAMERA

| | |
|------------------|------|
| Dual mode CAMERA | \$80 |
| PC WEB CAM | \$55 |
| USB PC CAM | \$70 |

CD-Rom & DVD

| | |
|--------------|-------|
| 52X SONY | \$75 |
| 52X SAMSUNG | \$65 |
| 12X DVD SONY | \$110 |
| 16X DVD SONY | \$135 |

CD-Writer

| | |
|---------------------|--------|
| USB EXTERNAL 32X6X4 | \$290* |
| ACER 40X16X10 | \$188 |
| ACER 40X20X10 | \$205* |
| IOMAGE 40X16X10 | \$190 |
| LG 40X16X10 | \$180* |
| SONY 32x12x8 | \$190 |
| SONY 40X16X10 | \$199 |
| RICOH32X8X8 | \$160 |
| RICOH32X16X10 | \$215 |
| RICOH 40X20X10 | \$215 |

Disk Drive

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|------------------|--------|
| 1.44M FDD | \$25 |
| 100M INT ZIP | \$110 |
| 100M EXT ZIP USB | \$179 |
| 20GB HARDDISK | \$170 |
| 20GB HD 7200rpm | \$190* |
| 30GB HD 7200rpm | \$235 |
| 30GB HD | \$195 |
| 40GB HD | \$209 |
| 40GB HD 7200rpm | \$267 |
| 60GB HD | \$299 |
| 60GB HD 7200rpm | \$399 |
| 80GB HD 7200rpm | \$440 |
| 100G HD 7200rpm | \$530 |

FAX MODEM

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|----------------------|-------|
| 56K INTERNAL | \$35* |
| 56K EXTERNAL | \$85 |
| 56K Netcom External | \$99 |
| 56K Netcomm Rave USB | \$135 |

Graphic(VGA)

| | |
|-----------------------|-------|
| 32M TNT2 M64 | \$74 |
| 32M Geforce2mx200tv-o | \$105 |
| 64m Geforce2mx200 | \$120 |
| 64m Geforce2mx400 | \$145 |

64m Geforce2mx400tv-o \$170

Leadtek 32m GF2MX200tv \$115

Leadtek 64m Mx400tv-o \$198

Leadtek 64m GrforceTi TV\$345

Keyborad & Mice

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|--------------------------|-------|
| PSII Keyborad | \$15 |
| Multimedia K/B | \$25 |
| MS Internet KIT | \$60 |
| Logitech cordless KIT | \$148 |
| A4 Wireless Mouse | \$26 |
| Logitech optical USB/ps2 | \$35 |

Mainboard

| | |
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| M754 ALL IN ONE | \$160 |
| ECS K7V2A | \$180 |
| M810 ALL IN ONE | \$168 |
| GA -8IDML-C | \$245 |
| ASUS P4BM | \$299 |

..... [and more]

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| 128MB SDRAM | \$45 |
| 256MB SDRAM | *\$65 |
| 512MB SDRAM | *\$145 |
| 128MB DDR RAM | *\$49 |
| 256MB DDR RAM | \$95 |

Monitor

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| 15" LG 552V .28 | \$245 |
| 15" VIEWMASTER | \$235 |
| 17" viewmaster | \$327 |
| 17" LG 773N | \$345 |
| 17" LG Flatron 775FT | \$478 |
| 17" KDS TRINITON FT | \$4xx |
| 17" SONY CPDE220 | *\$580 |
| 19" AOC 9Glr | \$520 |
| 15" LCD AOC LM-500 | **\$777 |
| 15" LCD Samsung 560V | \$950 |

Networking

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|----------------------|-------|
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| 4 PORT 100BASE | \$68 |
| 8 PORT 10 BASE | \$59 |
| 16 PORT 10BASE ACC | \$95* |
| 8 PORT 100BASE | \$125 |
| 5+1 PORTS Switch HUB | \$99 |
| PCI 10/100M Net card | \$23 |
| PCMCIA 10B PB | \$68 |
| PCMCIA 100B CB | \$99 |

Printer

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|----------------------|--------|
| CANON BJC1000 | \$98* |
| CANON BJC-2100 2IN 1 | *\$165 |
| Canon S400 | \$219 |
| EPSON C20UX | \$125 |
| EPSON C40U/SX | \$165 |
| EPSON C60UX | \$255 |
| EPSON 810PHOTO | \$340 |
| HP 640C | \$169 |
| HP 840C | \$225 |
| HP 880C | \$315 |
| Panasonic Laser 6100 | \$305 |

Scanner

| | |
|-------------|-------|
| CANON 340P | \$115 |
| CANON 640P | \$135 |
| CANON 650U | \$165 |
| CANON D660U | \$259 |
| CANON 1240U | \$275 |
| EPSON 1250U | \$210 |

Sound

| | |
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| Creative SB V128 | \$45 |
| SoundBlaster live value | \$98 |
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| ** special bundle. | |

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| CC-4BK | BCI-21 | BJC-2000/4000/5000 Series Black | \$7.00 |
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| CC-6BKHC | BJI-201BK HC | BJC-600/610/620 Hi-Cap Black (14ML) | \$9.00 |
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| CE-52BK | SO20034 | STYLUS Colour/Colour Pro Black | \$20.00 |
| CE-53CL | SO20028 | STYLUS Colour/Colour Pro 3-Colour | \$30.00 |
| CE-54BK | SO20047 | STYLUS 200/820/Colour II /IIs Black | \$13.00 |
| CE-55CL | SO20049 | STYLUS 200/820/Colour II /IIs 3-Colour | \$21.00 |
| CE-56PBK | SO20093 | STYLUS Colour 400/500/600/Photo Black | \$17.00 |
| CE-57CL | SO20097 | STYLUS Colour 200/500 3-Colour | \$23.00 |
| CE-58BK | SO20108 | STYLUS Colour 800/850/1520 Black | \$17.00 |
| CE-59CL | SO20089 | STYLUS Colour 400/600/800/1520 3-Colour | \$23.00 |
| CE-60PCL | SO20110 | STYLUS Colour 700/Photo/Photo 700 5-Colour | \$26.00 |
| CE-61BKCL | SO20138 | STYLUS Colour 300 4-Colour | \$31.00 |
| CE-65BK | SO20187 | STYLUS Colour 440/640/660 Black | \$16.00 |
| CE-66BK | SO20189 | STYLUS Colour 740/760 Black | \$16.00 |
| CE-67CL | SO20191 | STYLUS Colour 440/640/660/740/760 3-Colour | \$26.00 |
| CE-68PCL | SO20193 | STYLUS Photo 750 5-Colour | \$33.00 |
| CE-69CL | 7003011 | STYLUS Colour 900 Black | \$19.00 |
| CE-70CL | 7005011 | STYLUS Colour 900 Colour | \$24.00 |
| CE-71PCL | 7001011 | STYLUS Photo 1200 5-Colour | \$29.00 |
| CE-27BK | 7007 | STYLUS Colour 870/1270 Black | \$24.00 |
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| A3WF | A3 White Film 100mu | 50 | \$ 90.00 | 1.80 |
| A4CF | A4 Clear Film 100mu | 50 | \$ 39.00 | 0.78 |
| A3CF | A3 Clear Film 100mu | 50 | \$ 71.00 | 1.42 |
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| CANON BC-01/02 BJ-10E/20 BJ-200 Series & BJC-1000 Series | 9 | 3-BKL |
| CANON BJ-300/330 | 7 | 4-BKL |
| CANON BJC-600/610/620 | 16 | 5-BKL |
| CANON BJC-2000/4000/4100/4200/4300/4550/5000/5500 BCI-21 | 45 | 19-BKL |
| CANON BJC-2000/4000/4100/4200/4300/4550/5000/5500 BC-20 | 9 | 18-BKL |
| CANON BJC-3000/6000/8000 Series | 12 | 46-BKL |
| HP Desk Jet 400/500 Series | 6 | 8A-BKL |
| HP Desk Jet 600/660/690 Series | 6 | 8B-BKL |
| HP Desk Jet 700/800/900/1000 Series | 8 | 29-BKL |
| HP Desk Jet 300 Series & Olivetti JP's! | 8 | 7-BKL |
| EPSON Stylus 400/800/800+/1000 | 8 | 1-BKL |
| EPSON Stylus Colour /PRO/XL | 12 | 2-BKL |
| EPSON Stylus 820/colour II/IIIs | 12 | 23-BKL |
| EPSON Stylus Colour 200/300/400/500/600/800/850/1520 | 12 | 33A-BKL |
| EPSON Stylus Colour 440/460/480/640/660/700/740/760/900 | 12 | 33B-BKL |
| IBM/LEXMARK 4076/1000/1020/2000/2030/2050 Series | 12 | 35A-BKL |
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| CANON BJC-210/210SP/240/255/265/1000 Series | 3x12 | 25-CLR |
| CANON BJC-600/610/620 | 3x8 | 10-CLR |
| CANON BJC-2000/4000/4100/4200/4300/4550/5000/5500 BCI-21 | 3x30 | 17-CLR |
| CANON BJC-3000/6000/8000 Series | 3x8 | 47-CLR |
| HP Colour Desk Jet 300/400/500 Series & Olivetti! | 3x12 | 14A-CLR |
| HP Colour Desk Jet 600C/660C/690C Series | 3x12 | 14B-CLR |
| HP Desk Jet 850C/855C/870C/1000C Series | 3x3 | 30A-CLR |
| HP Desk Jet 710/720/890/900 Series | 3x3 | 30B-CLR |
| EPSON Stylus Colour /PRO/XL | 3x4 | 16-CLR |
| EPSON Stylus 820/colour II/IIIs | 3x12 | 24-CLR |
| EPSON Stylus Colour 200/300/400/500/600/800/850/1520 | 3x12 | 34A-CLR |
| EPSON Stylus Colour 440/460/480/640/660/700/740/760/900 | 3x12 | 34B-CLR |
| IBM/LEXMARK 4076/1000/1020/2000/2030/2050 Series | 3x6 | 36A-CLR |
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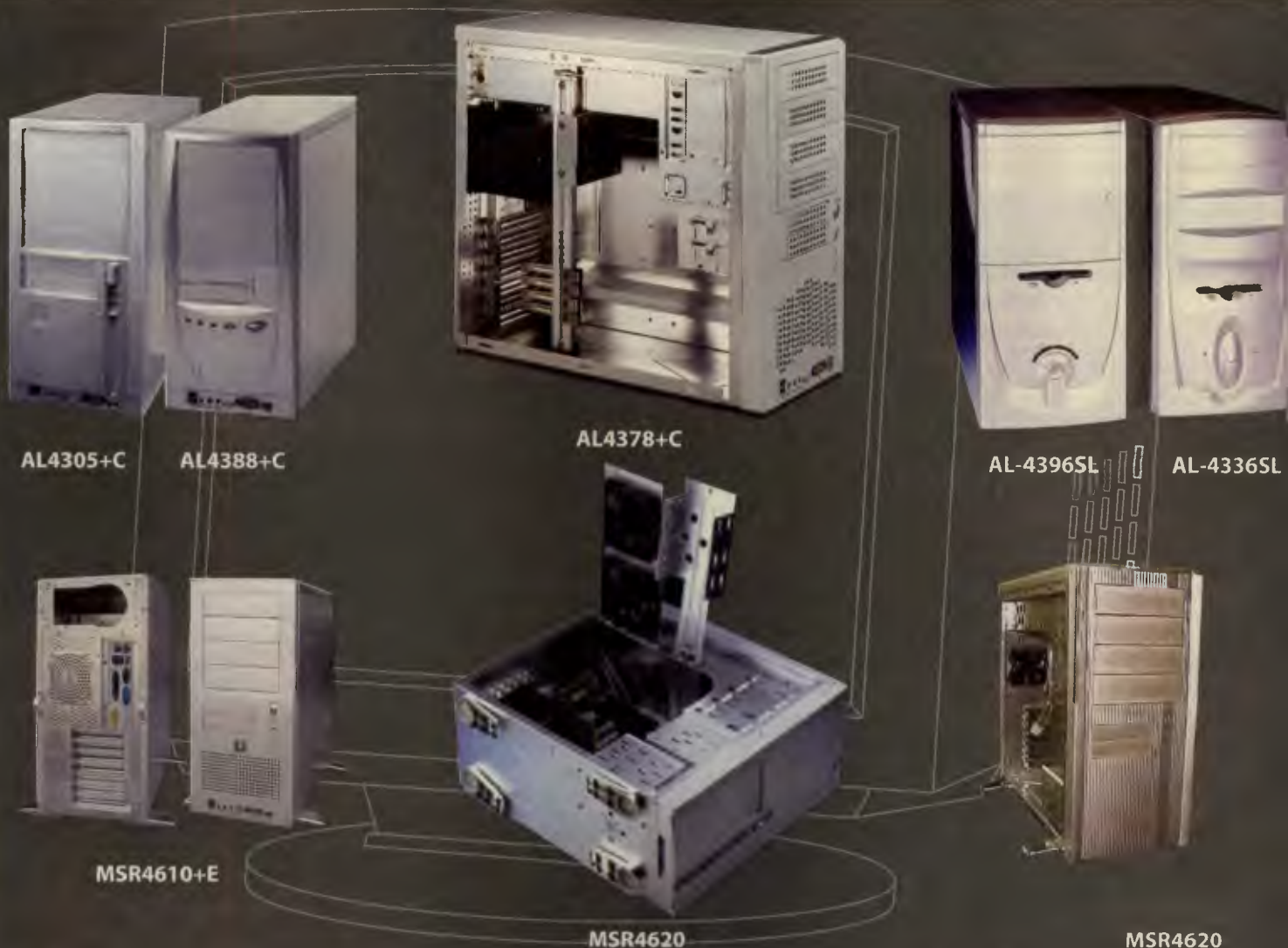
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MULTIPLE INPUT UNIT

MIU allows for up to 12 separate movement sensors or switches to be connected to the TDU. Each sensor triggers its own unique message, output via any 8 ohm unpowered, powered or amplified speaker.



SPEAKER SWITCHING UNIT

SSU allows for up to 12 separate speakers to be connected to the TDU so that each sensor triggers its own separate message, output on its own separate speaker. Background music can be played at all other times.



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ASU allows the TDU to be connected to any existing PA or Background Music system. The existing PA or Background Music system is then muted or faded whenever a TDU message is broadcast and then reconnected when finished.



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Call in to Switch ON, Switch OFF or RESET your PC, SERVER or any electrical equipment by telephone line using touch tone commands. RTA connects to any telephone line. Requires PCU or PCR accessory.



RTA-PRO VERSION

PRO version provides independent control of 2 separate outputs, with PIN number security. Status tones for each output are provided on answer. Shares an existing line when used with the Multiple Number service.



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PCU connects direct to the RTA and also to your power socket to allow telephone line dial in switching of the 240V supply connected to your equipment. Easy Plug In User Installation. Controls up to 10 Amps.



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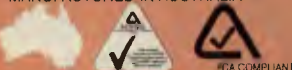


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| P4-1.8Gb | \$623 |

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| Athlon 1.3G & fan | \$257 |
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| Athlon XP 1800 | \$534 |
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| V7700 GeForce GTS 32Mb Deluxe, DDR | \$380 |
| V7700 Titanium 64Mb Deluxe, DDR | \$470 |
| GeForce 3 64Mb Ti 200 | \$649 |
| GeForce 3 64Mb Ti 500 | \$957 |

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| Hercules 3D Prophet II MX400 32Mb | \$210 |
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| Hercules 3D Prophet 4000 XT 32Mb | \$123 |
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| Hercules 3D Prophet 4500 64Mb TV out | \$319 |
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| Hercules 3D Prophet III Ti200 64Mb TV | \$480 |
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| Hercules 3D Prophet III Ti500 64Mb TV | \$860 |
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| Leadtek GeForce 2 GTS 64M | \$339 |
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| Morpheus 3D Power GeForce 3 oem | \$698 |
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| Eagle GeForce II MX AGP 32Mb TV-out | \$140 |
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| Eagle GeForce II MX G400 64Mb TV-out | \$153 |
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| Pixelview GeForce II MX400 AGP 32Mb | \$140 |
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CD Rewriters

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| Diamond DD1610A 32x16x10 IDE Kit | \$215 |
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| LG GCE- 8160B 32x16x10 IDE Kit | \$188 |
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| Panasonic 7586 32x8x4 IDE Kit | \$189 |
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| Acer 1610A 32x16x10 IDE Kit | \$200 |
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| Acer 2010A 40x20x10 IDE Kit | \$240 |
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| Sony CRX175E 40x24x10 IDE oem | \$260 |
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| Sony CRX160S 32x12x8 SCSI oem | \$335 |
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| Ricoh MP7200A 40x20x10 IDE Kit | \$230 |
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| Ricoh MP9120A 32x12x10 DVD Kit | \$290 |
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| Ricoh MP9200A 40x20x10 DVD 12x Kit | \$460 |
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| Mitsubishi Diamond external 32x4x4 USB | \$337 |
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| lomega CDRW6400 40x16x10 kit | \$230 |
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| ASUS 2410S 40x24x10 kit | \$290 |
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Printers

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|---------------------|-------|
| EPSON | |
| Stylus C20UX | \$113 |
| Stylus C40UX / 40SX | \$164 |
| Stylus C60 | \$250 |
| Stylus C70 | \$407 |
| Photo 810 | \$345 |
| Photo 895 | \$670 |
| Photo 1290 (A3) | \$909 |

Canon

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|---------------------|-------|
| BJC1000SP | \$107 |
| BJC 2100SP | \$145 |
| S-400 | \$214 |
| S-450 | \$290 |
| S-800 | \$550 |
| Laser LBP810 (8ppm) | \$475 |

hp

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|------------------|-------|
| HP 640C | \$135 |
| HP 845C | \$189 |
| HP 930C | \$255 |
| LaserJet 1200 | \$765 |
| Panasonic KX6100 | \$305 |
| Samsung ML-4500 | \$430 |

Scanners

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|-----------------------|-------|
| Acer 3300U | \$119 |
| Canon N340P | \$110 |
| Canon N640P | \$130 |
| Canon N670U | \$170 |
| Canon N676U | \$200 |
| Canon N1240U | \$285 |
| Canon D660U | \$255 |
| HP 2200C | \$174 |
| Mitsubishi DV648U | \$100 |
| Epson Perfection 1250 | \$230 |
| Epson Perfection 1650 | \$360 |
| Epson 1650 photo | \$440 |

Add on cards

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| Promise U100 | \$90 |
| PCI SCSI II card | \$44 |
| USB PCI card | \$35 |

Sound Cards

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| ISA / PCI Sound | \$25 |
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Memory

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| 256Mb SDRAM | \$75 |
| DDR 256M | \$130 |

Networking

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|----------------------|-------|
| NIC 10/100Mb | \$22 |
| 8 Port Hub 10Mb | \$64 |
| 4 Port Hub 100Mb | \$78 |
| 4 Port switch 10/100 | \$105 |
| 8 Port Hub 100M | \$109 |
| 8 Port switch 10/100 | \$150 |
| USB Hub 4 port | \$55 |

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| DVD 16x Sony/Sams | \$130 |
| DVD 16x Pioneer/LG | \$130 |
| DVD 16x Aopen | \$145 |
| DVD 16x Panasonic | \$160 |
| DVD 16x Diamond | \$145 |

Removable Storage

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| 100Mb Internal Zip | \$110 |
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| 250Mb Internal Zip | \$185 |
| 250Mb Parallel Zip | \$320 |

Cases

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| ATX Midi case | \$55 |
| ATX Full tower case | \$110 |
| ATX Aopen KF45 | \$70 |
| ATX Aopen HX45 | \$100 |
| ATX Aopen HQ 08 | \$185 |

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- 20GB 7200rpm HDD
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- 32M GeForce II MX
- PCI 3D Sound card
- 16x DVD Rom
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- Subwoofer Speakers
- Midi Deluxe ATX case
- Microsoft Internet Keyboard
- Logitech Intellimouse & Pad

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| P4 1.6Gb | \$1790 |
| P4 1.7Gb | \$1860 |
| P4 1.8Gb | \$2000 |

AMD Astra Pro

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- 32M GeForce II MX
- S/B 128 Sound card
- 50x CD Rom
- 17" Acer / LG Monitor
- 480 Watt Speakers
- Aopen KF45 ATX case
- Acer Win98 Keyboard
- Logitech Intellimouse & Pad

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| Duron 900 | \$1365 |
| Athlon 1.2G | \$1460 |
| Athlon 1.3G | \$1480 |
| AthlonXP1800 | \$1760 |

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- PCI 3D Sound card built-in
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- 50x CD Rom
- 15" SVGA Monitor
- 120 Watt Speakers
- Midi Deluxe ATX case
- Win98 Keyboard
- A4 Mouse & Pad

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| Celeron 850 | \$930 |
| Celeron 900 | \$950 |
| Pentium III 866 | \$1160 |
| Pentium III 1G | \$1240 |

Blank CDs

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| CD 74min | \$0.6 |
| Ricoh/Kodak/Misumi | \$1.5 |
| Verbatim/Kodak 80m | \$1.5 |
| Rewritable CD | \$3.0 |

Cameras

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| Logitech Qcam web | \$169 |
| Creative Web cam | \$87 |
| Vcam Digital | \$90 |
| Acer Digital 300 | \$200 |

MS Software

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| Windows ME / 98 | \$210 |
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| Office 2000 / XP & Pro-Full version oem | \$500 |

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| Netcomm 56K Int | \$55 |
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| Netcomm Roadster | \$180 |
| Dynalink Ext | \$90 |
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| 120W SPKs / 480W | \$10/\$30 |
| 400W SPKs with Sub-Woofer | \$40 |
| Creative PC Works S/Woofer | \$78 |
| Creative FPS1500 4 Spks | \$172 |
| Creative FPS1000 4 Spks | \$128 |
| Altec Lansing ACS22 / 300 | \$45/\$80 |

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| A4-Tech PS/2 or serial | \$7 |
| A4-Tech PS/2 wheel | \$15 |
| A4-Tech 4D wheel | \$30 |
| A4-Tech wireless PS/2 | \$30 |

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| PS/2 | \$15 |
| Wheel PS/2 or USB | \$30 |
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| Optical cordless PS/2 / USB | \$139 |

Microsoft

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| IntelliMouse PS/2 | \$30 |
| Wheel mouse Optical oem | \$55 |
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Keyboards

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CANON BJC-2000/4000/4100/4200/4300/4550/5000/5500 BCI-20 9
CANON BJC-3000/6000/6200/6500/8000 & S400/S500 Series 12
CANON BJC-7000/7100 Series - Including Optimiser! 6
CANON BJC-8200 & S800 Series 6
HP Desk Jet 400/500 Series 8
HP Desk Jet 600/660/690 Series 8
HP Desk Jet 700/800/900/1000/1100/1200 Series 8
HP Desk Jet 300 Series & Olivetti JPs! 12
EPSON Stylus 400/800/800+1000 12
EPSON Stylus Colour (PRO)XL 12
EPSON Stylus 820/colour II/III 12
EPSON Stylus Colour 200/300/400/500/600/800/850/1520 12
EPSON Stylus Colour 440/460/480/640/660/670/700/720/740/760/900/1160 12
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29 BKL
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CANON BJC-3000/6000/6200/6500/8000 & S400/S500 Series 3x6
CANON BJC-8200 & S800 Series 3x6
HP Desk Jet 300/400/500 Series & Olivetti! 3x12
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EPSON Stylus Colour (PRO)XL 3x4
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EPSON Stylus Colour 440/460/480/640/660/670/700/720/740/760/900/1160 3x12
EPSON Stylus Colour 880/777/780/785/870/880/875/890/1270/1280 3x6
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| IBM 36.7GB Ultra160 - 36LZX, 4.9ms | \$ 946.00 |
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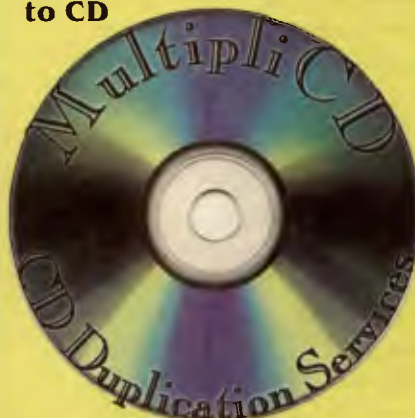
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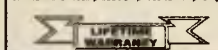
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